JERSEY INNOVATION REVIEW

September 2015

by Tera Allas

Tera Allas

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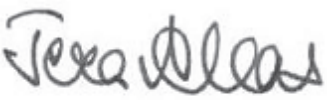
FOREWORD

It has been a privilege to be asked to work on this review. Through my work on Jersey's Fiscal Policy Panel, I have first-hand knowledge of the challenge that Jersey faces – that productivity improvements are required if the Island is to maintain its high standard of living. In my view, sustainable and significant improvements in productivity can only be found by boosting the level of innovation in the private sector and by enhancing the impact innovation has on the economy.

I would like to give my thanks to all those who participated, through responding to the survey or taking part in interviews. The evidence collected through both these exercises has been absolutely vital to the review and the conclusions of the report are much improved as a result of the high level of engagement offered. It was a pleasure to meet with so many individuals who were committed to Jersey's future and had a passionate belief that it can be a great place to become a leader in innovation.

I would also like to thank the Economics Unit for support in undertaking the review, and for running the innovation survey which provided much of the evidence behind the analysis. My appreciation also goes to the Statistics Unit; the Population Office; the Department of Education, Sport and Culture; Skills Jersey and the Economic Development Department who all provided further data for the review. Support from Digital Jersey and Jersey Business was also invaluable to the review team. Finally, I and the team benefitted from the support and encouragement of Senator Ozouf, the Assistant Chief Minister for Digital, Competition, Innovation and Financial Services, who commissioned the review and who I know shares my views on the importance of innovation.

I hope this report and its recommendations provide a basis for strong progress going forward. While Jersey is not the only jurisdiction seeking to develop its innovation policy, I am confident that the States can build upon what has already been achieved, and set the building blocks to become a world-leading location for innovation and innovative firms. I will watch with great interest how Jersey progresses and hope that this review will prove to be a valuable input into the future development of Jersey's economy.



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Section 1 - EXECUTIVE SUMMARY

Facilitating increased innovation, enterprise and inward investment is a key element of the States of Jersey 2015-2018 Strategic Plan priority to maximise economic growth (States of Jersey, 2015a). To achieve this, the Council of Ministers has agreed that one area of focus will be the development of a new innovation strategy to build on the success of the Innovation Fund. To aid in the development of the innovation strategy, the States of Jersey has commissioned this review to consider Jersey's current innovation performance and to present recommendations for enhancing it.

Jersey has had no apparent growth in productivity since 2000. Whatever the underlying reasons for this, it is a concern for Jersey's sustained prosperity. One way in which businesses in Jersey can become more productive is through innovation - by introducing new, valuable products and services; new processes for producing or distributing products; new and more efficient organisational structures or new techniques for marketing. Estimates suggest that innovation accounts for 25 per cent to 50 per cent of productivity growth in developed economies (OECD 2015).

The review undertook a comparative analysis of the performance of Jersey in relation to the six key areas of successful innovation systems:

1. **Money**: the amount of expenditure invested in innovation in the economy
2. **Talent**: the skills and people available for generating and delivering innovation
3. **Knowledge**: access to the stock of ideas, expertise and collaboration to drive innovation
4. **Business environment**: ease of and incentives for innovating
5. **Science and innovation policies**: government's policies to enhance innovation
6. **Innovation outputs**: impact of innovation on the economy

The comparative analysis considered twelve jurisdictions – Jersey plus eleven comparators chosen by the review team. These eleven were chosen on the basis of some similarity to Jersey, and on the basis of availability of data for the relevant indicators. All are either considered to be innovation-leaders or are competing with Jersey to become innovation-leaders. The review team intentionally chose to set the bar high and compare Jersey's performance to global leaders, as these are the jurisdictions with which Jersey is competing.

An evidence-based approach was taken to analysis. Data were collected for the comparators from a variety of sources and these were compared to the review team's findings of the position in Jersey. Information on Jersey was collected from a variety of sources:

1. Existing data
2. Jersey Innovation Survey - the review team designed a survey which was sent to over 500 businesses, with more than half of these responding. The survey included a mix of qualitative and quantitative questions.
3. Interviews - structured interviews were carried out with over seventy local firms and stakeholders from the business community. A range of sectors were covered – including retail, hospitality, agriculture, financial services, construction, telecommunications, digital, aquaculture and manufacturing firms.

The review's findings are summarised in Table 1:

Table 1 - Summary of main findings

Element	Overall Assessment	Key strengths	Key weaknesses
Money	**Strength**	• Funding opportunities available locally • Access to funding from UK • Significant number of firms investing in R&D • Significant investment in intangible assets	• Limited funding for early-stage ideas • Lack of clearly-identified funding pathway • Low level of direct government funding for innovation (but low tax)
Talent	**Weakness**	• Well-educated population • Migration provides an opportunity to import talent	• Businesses find it difficult to source skilled people • There is room for improvement in leadership and management skills • Restrictions on migrant labour are a barrier to innovation
Knowledge	**Weakness**	• Access to knowledge bases in UK • Access to collaborative opportunities internationally	• Limited local knowledge bases • Opportunities for collaboration or knowledge transfer are ad-hoc • Few well-developed clusters
Business environment	**Mixed**	• Vibrant business community • Strong legal framework • Good transport links and connectivity • Network of effective government support agencies • Expertise in professional services	• Risk averse culture • Transport and communication costs expensive • Businesses slow to adopt technology • Starting a business not streamlined
Science and innovation policies	**Weakness**	• Low tax environment supportive of innovation • Comprehensive system of intellectual property rights • Current policy landscape not over-crowded or complex	• No policies to support collaborative research • Limited awareness of support available from agencies • Perception of poor intellectual property protection • Government procurement is not seen to foster innovation
Innovation outputs	**Mixed**	• Large proportion of firms engaging in innovative activities • Firms have ambitions to grow • Significant number of SMEs are exporters	• Innovation does not contribute significantly to revenues • Limited number of high-growth firms • No productivity growth in either finance or non-finance sectors

On the basis of this analysis, the detail of which is elaborated on in the following sections, a number of recommendations have been developed within each area:

Money

Recommendation 1: Government should ensure the operation of the Innovation Fund is appropriate to provide support at all relevant stages of development of an innovative idea, including considering whether some changes need to be made to make the funding more suitable for earlier stage ideas.

Recommendation 2: Government should evaluate the effectiveness of the Innovation Fund after two years of operation, reviewing, and if appropriate changing, its size, scope and type of funding (e.g., loans, grants or equity investments).

Recommendation 3: Government should work with delivery partners (Jersey Business and Digital Jersey) to clearly depict and sign-post the range of funding and finance available for innovative firms in Jersey.

Recommendation 4: Jersey Business should measure the level of awareness of its services, including those supporting businesses in funding, financing and delivering innovation and growth, and set targets to improve awareness and grow its client base where appropriate.

Recommendation 5: Government should ensure that ongoing monitoring of recipients of support from the Innovation Fund is supplemented by ongoing support and aftercare. This should also be extended to firms who have obtained finance elsewhere.

Recommendation 6: Government should work with the Jersey Financial Services Commission to identify any specific types of funding vehicles which are not possible in Jersey and identify whether this restricts the availability of finance for innovative firms.

Talent

Recommendation 7: Education and skills policy needs to be set within the context of the States' economic objectives and in consultation with industry. The Education Department should work with businesses to create and implement an action plan to raise standards and align the curriculum with future skills requirements of innovative businesses, including problem solving, design, STEM subjects and entrepreneurship.

Recommendation 8: Government and delivery partners should clearly describe and promote the business support, including skills development, available to entrepreneurs from government and private sector sources. This should include measuring and setting targets to improve awareness of the support available.

Recommendation 9: Government should evaluate the performance of the Skills Accelerator programme and ensure that funding continues to be available where required – through either continuing the Skills Accelerator or offering further support to ensure lack of funding does not prevent employers from making appropriate investments to develop the skills of their employees.

Recommendation 10: The Education Department should identify who is responsible for developing a plan to address the shortfalls in leadership and management skill identified in the research commissioned by Skills Jersey.

Recommendation 11: Government should develop a mechanism to encourage firms to bring some digital and technological expertise in at board level, for example Digital Jersey sourcing a non-executive director plus part-funding for the initial twelve months.

Recommendation 12: Government should ensure that migration is targeted at those opportunities that have the most potential to contribute to an innovative and productive business base, for example by prioritising

posts which will bring entrepreneurial skills, STEM subjects or the development of the leadership and management capabilities of the workforce.

Recommendation 13: Government should make licences to employ migrant labour freely available for key posts in certain sectors or for specific skills, on a pilot basis to be reviewed after twelve months.

Recommendation 14: The Population Office should publish annual high-level statistics for average time taken to process applications for licensed/registered staff and set ambitious targets for improvement where appropriate.

Knowledge

Recommendation 15: Government and delivery partners should continue to work together to capitalise on opportunities to raise and promote Jersey's image as open for business and as a location of choice for entrepreneurs.

Recommendation 16: Government should aim to develop targeted linkages and relationships with knowledge bases (e.g. Russell Group universities, Research Councils, Innovate UK) in key target areas as can be identified in consultations with industry, such as digital, finance and professional services; and integrate these into support provided by delivery partners.

Recommendation 17: Government should develop support mechanisms for local businesses to collaborate, for example by exploring whether Jersey firms could take advantage of UK research and innovation collaboration programmes, such as the Digital Catapult Centre or Knowledge Transfer Networks.

Recommendation 18: Government should nominate an individual or body to explore opportunities to promote the Island as an opportunity to test innovations in specific areas where Jersey regulations and environment can provide a unique advantage.

Recommendation 19: Digital Jersey should continue to work towards the development of a digital cluster, but there needs to be a more clearly defined vision of what this cluster should look like and what actions and resources are necessary – agreed and tracked by government and industry.

Business environment

Recommendation 20: Government should consult with businesses to ascertain which regulations are viewed as the major barriers to enterprise and undertake to reform or remove these, subject to a cost/benefit analysis.

Recommendation 21: Government should develop and implement a plan for publicising and celebrating innovative firms in Jersey, including an innovative firm award at the Jersey Enterprise Awards.

Recommendation 22: Government should benchmark its performance for processing applications to start indigenous and inward investment businesses, and set targets for improvement.

Recommendation 23: Government should compare, and then act on, the costs and benefits of being included in one of the major global competitiveness comparisons versus undertaking further research locally to benchmark and improve Jersey's competitiveness.

Recommendation 24: Government should assess whether the cost of data connectivity is a barrier to enterprise and innovation, and whether there is any justification for providing targeted financial support to certain types of businesses to overcome this.

Science and innovation policies

Recommendation 25: Government should continue to engage with industry to identify any constraints to innovation resulting from the existing system of intellectual property protection and take measures to address any outstanding issues.

Recommendation 26: Government should assess the value and feasibility of any potential opportunity to become a global hub for the management of intellectual property assets.

Recommendation 27: Government should review and, where appropriate, reform government procurement guidelines and practice to reduce bureaucracy, increase transparency, and reward innovation (i.e., value as opposed to just low cost), and publish statistics on government procurement by size and age of company.

Recommendation 28: Government should develop a programme to encourage firms to engage in knowledge transfer, for example investigate the feasibility of Jersey firms being able to apply to UK programmes such as Knowledge Transfer Partnerships and Innovation Vouchers.

Recommendation 29: Government should continue to actively support, and remove barriers from, the development of any privately-funded incubator or shared creative space.

Recommendation 30: Government should map the entrepreneurship training available on-island, including consultations with entrepreneurs to identify and aim to fill any gaps in partnership with the education and private sectors, and ensure the information is easily available to innovators.

Recommendation 31: The Enterprise Strategy should develop a range of actions specifically designed to identify and support potential high growth firms. The progress of these potential high-growth firms should be tracked, in addition to monitoring the number of high-growth firms in the economy.

Innovation outputs

Recommendation 32: Government should develop and start implementing an action plan based on the recommendations in this report, with clear deliverables, responsibilities, target dates and other targets, endorsed by all key stakeholders and published by end of 2015. This should involve ongoing monitoring of performance, with annual reports with some of the key indicators used in this review.

Recommendation 33: Appropriate structures and resources need to be in place within central government which can drive forward innovation policy and implement the action plan required to address the issues raised in this review.

Section 2 - INTRODUCTION

Facilitating increased innovation, enterprise and inward investment is a key element of the States of Jersey 2015-2018 Strategic Plan priority to maximise economic growth (States of Jersey, 2015a). To achieve this, the Council of Ministers has agreed that a key area of focus will be the development of a new innovation strategy to build on the success of the Innovation Fund. To aid in the development of the innovation strategy, the States of Jersey has commissioned this review to consider Jersey's current innovation performance and to present recommendations for enhancing it.

The following sections explain the approach taken to this review. As background, they also outline the importance of innovation and of productivity to prosperity and the specific considerations that arise from the nature of the Jersey economy.

2.1. The importance of innovation to productivity

Jersey's Fiscal Policy Panel[1] has considered recent trends in the economy and concluded that there is a risk that the trend rate of growth will be flat in the medium-term future. The Panel has therefore recommended that the States develops a strategy to improve productivity. One way in which businesses in Jersey can become more productive is through innovation - by introducing new valuable products and services; new processes for producing or distributing products; new and more efficient organisational structures or new techniques for marketing.

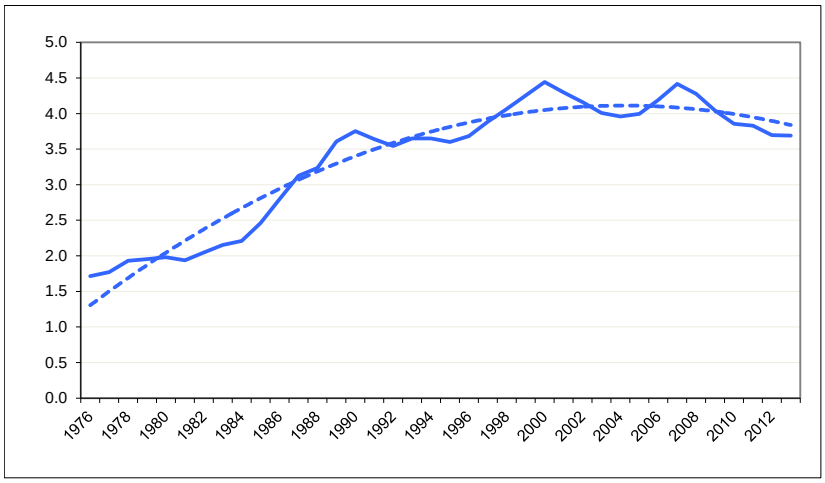
Globally, the history of economic growth has been largely based on increasing the stock of labour and capital used in the economy. However, this route of economic growth through accumulation of labour and capital is not sustainable in the long term: it is subject to diminishing returns and, at least in the case of labour, the resources are finite. Sustainable growth must therefore be based on increases in what is called "total factor productivity", i.e. increases in the rate of output which can be achieved with a given level of both labour and capital. This requires using new ways to get more from the resources used – making innovation key. Indeed, the OECD estimate that up to 50 per cent of economic growth in developed nations is attributable to innovation (OECD, 2015).

Jersey has a long history of being an innovation-leader in many fields, ranging from locally produced knitting products in the seventeenth century which still retain the name 'jersey'; up to the development of the world's first trust law in 1984. As a result of this tradition, Jersey currently enjoys a very high standard of living by international standards. Figure 1 demonstrates that Jersey's gross value added (GVA – a measure of the output of the economy) is estimated to have doubled between 1982 and 1998 in real terms, growing much faster than many larger neighbouring jurisdictions such as the United Kingdom (UK). Among European Union (EU) countries, only Luxembourg and Ireland grew at similar rates.

However, more recently, the pace of growth appears to have slowed or even reversed. The Fiscal Policy Panel has analysed the output of the economy over the last economic cycle, 2004 to 2013, and found that the economy declined by an average of almost 1 per cent per year. While this was primarily due to a fall in profits in the banking sector, the Panel also found that productivity in the non-finance sector was flat over this period.

[1] The Fiscal Policy Panel provide Jersey's Treasury and Resources Minister and States members with independent economic advice on matters relating to tax and spending policy, and the use of the Stabilisation Fund.

Figure 1 – Jersey historical GVA, constant (2013) prices, £ billion



Source: Jersey Statistics Unit, plus Economics Unit estimates before 1998.

The issue of weak productivity growth in other countries since the 2007/08 financial crisis has become known as a productivity puzzle. The same phenomenon, however, appears to have occurred over a longer period of time in Jersey, with no apparent growth in productivity since 2000. Whatever the underlying reasons for this, it is a concern for Jersey's sustained prosperity. This further emphasises the importance of innovation, which accounts for 25 per cent to 50 per cent of productivity growth in developed economies (OECD, 2015).

2.2. The role of government

There is a general recognition that government can play an important role in facilitating and encouraging innovation in the private sector. Intervention has traditionally been based on the need to correct market failures, i.e. factors which lead to levels of innovative activity which are lower than the optimal level for society. These market failures include risk aversion, information failures and externalities.

Externalities – Some of the benefits of innovation (or the costs of not innovating) may fall to someone other than the innovating firm. One form of this is 'spillover benefits', where the benefits of one firm's investment *spill over* to other firms. Studies have shown that the "social return" (i.e. the return to society) to investment in research and development is typically two to three times larger than the "private return" (Frontier Economics, 2014), indicating significant spillover benefits.

Risk aversion – Firms may under-invest as they perceive that the returns from research, development or innovation do not sufficiently compensate for the risks involved, e.g. the cost of funding industrial research can be considerable and the returns uncertain.

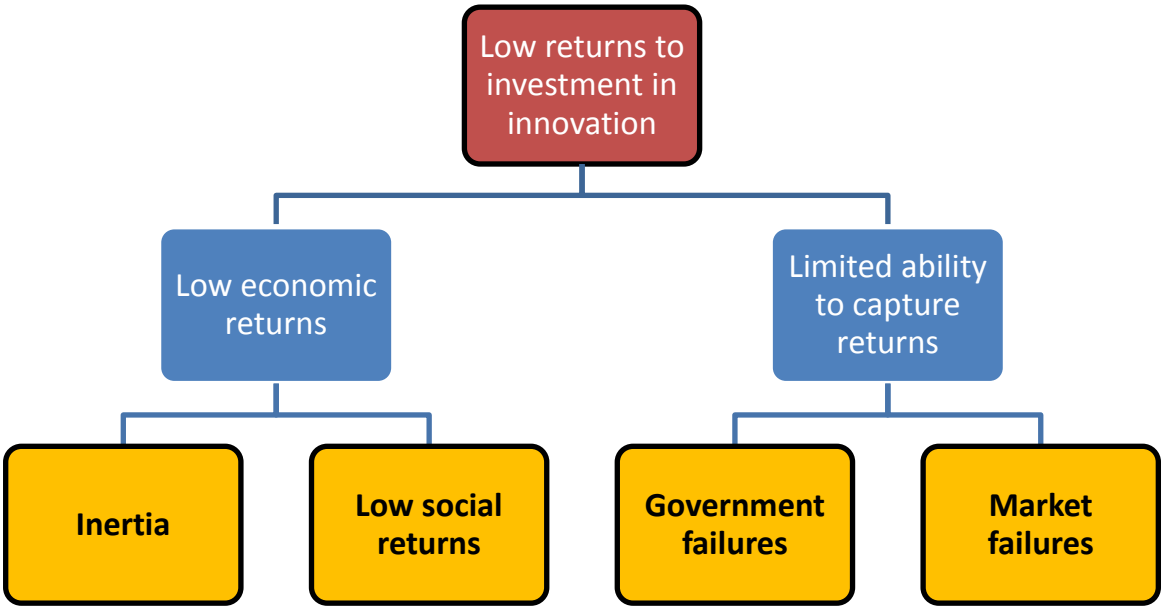
Information failures – Firms may not be aware of the potential rewards from investing in innovation, e.g. they may not be aware of the expertise within local universities which can help them to develop new products or the process innovations in their industry that would allow them to reduce costs

Coordination failures – Coordination failures occur where firms could achieve more by acting together but there is no established mechanism for them to work together. These are common in technology based innovation where the frequent sharing of ideas and experience is often required for successful applications.

System failures – The linkages between various components of the innovation system may be weak. This can particularly be the case where there is a new, disruptive technology and there are limited established linkages. This means that knowledge or resources are not channelled to organisations which would benefit from them.

The existence of these market and system failures in relation to innovation means that without government intervention, there is likely to be an underinvestment in innovation.

In its forthcoming Innovation Strategy, the OECD (2015) indicates that innovation is constrained where there are factors which limit the expected returns to investment. This can either be due to low overall returns or the inability of the investor to capture the returns.



Source: Based on Figure 1.4 in OECD (2015)

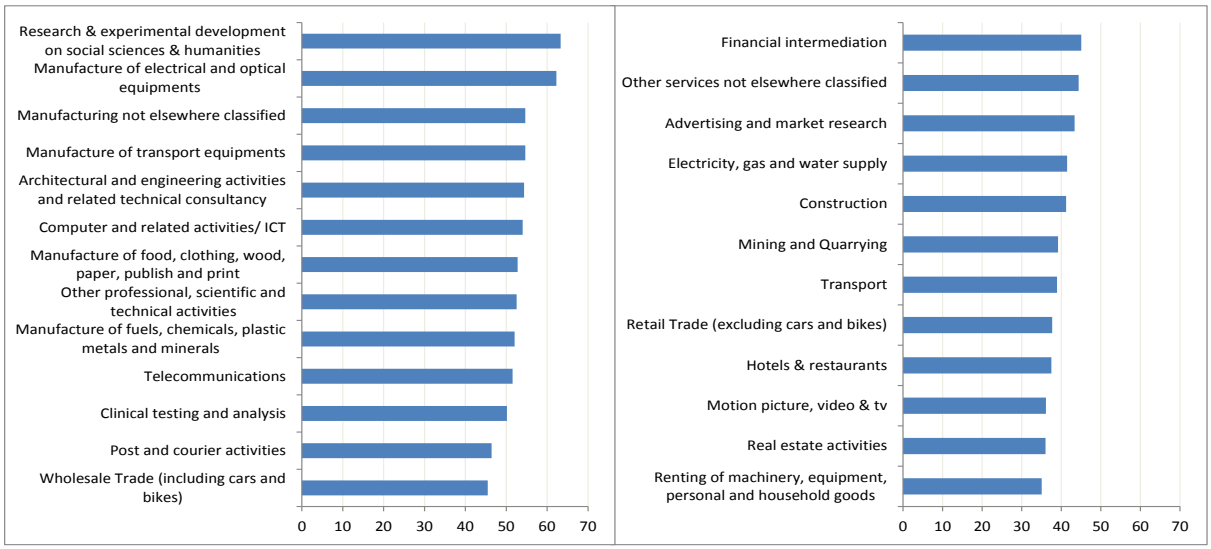
In the OECD framework, market failures are only part of the potential barriers to innovation, and government intervention may be required in order to correct a number of other potential factors limiting investment in innovation. A recent discussion paper commissioned by Innovate UK has gone a step further and suggested that government's role should not simply be about correcting market failures but that government should take a leading role in driving forward innovation and "shaping and creating markets" as well as fixing them (Mazzucato, 2014).

This review has therefore been carried out on the basis that government plays an important role in any innovation system and Jersey's government should strive to create an environment which fosters innovation, as part of its wider industrial strategy.

2.3. Overview of Jersey's economy and implications for innovation

The level and type of innovation in Jersey is likely to be influenced by the sectoral mix of Jersey's business base and the type of activities which are carried out within each sector. Data from the UK suggest that the sectors with the highest proportion of firms that had undertaken innovation activities during 2010-2012 (defined as "innovation active") were primarily manufacturing and ICT-related. These data also show that, on average, larger firms and exporting firms more likely to be innovation active; and that innovation active firms employ more graduates and staff with science, engineering, maths, design and digital skills.

Figure 2 - Innovation active firms in the UK by sector 2010-2012 (%)



Source: UK Innovation Survey 2013

These characteristics have implications for Jersey, given its particular economic make up. The financial services sector contributes over 40 per cent to Jersey's GVA. International data suggest that the financial services sector is generally one of the more innovative sectors (OECD, 2011a) but this depends on the type of activity being undertaken. Figure 2 shows that less than half the firms in the UK's financial intermediation sector were innovative over the three year period considered.

Jersey also has a very limited manufacturing base with production of dairy products and newspaper publishing being examples of the main activities undertaken.

While Jersey has a large number of micro-businesses (firms employing less than ten people), the share of employment in these firms is significantly smaller than in the UK. This is due to the number of larger employers in the financial services sector, with micro-businesses making up a much larger proportion of non-finance employment. Research from Northern Ireland shows that micro-businesses as a whole are more likely to be innovative, particularly those businesses with 5-9 employees, though the type and scale of innovative activities differs from those in larger firms (DETI, 2014). Over 90 per cent of the micro-businesses in Jersey employ five people or less, so there are relatively few businesses in the more innovative 5-9 size band.

There may also be some factors resulting from Jersey being a small island, for example it may be more difficult to establish and develop clusters or collaborative links or the smaller local market may mean that innovation is not driven by a highly competitive marketplace. Further, Jersey differs from larger jurisdictions in that there is no on-island university. Universities are acknowledged as playing an important, but complex, role in innovation. In addition to contributing directly to innovation through collaborations and spin-outs, universities have important spillover effects by generating new knowledge, available talent and absorptive capacity. While some of these spillovers can occur across borders, there is also likely to be a local element, e.g. benefits that arise through staff rotation from academia to businesses and vice versa.

As a whole, some of these factors may present challenges which are different to those faced in other jurisdictions. The rest of the report will consider whether these challenges are constraints to innovation in Jersey.

2.4. Approach taken to the Jersey Innovation Review

This review has taken as a starting point internationally recognised research and knowledge of successful innovation systems while adapting and focusing these for the specific needs of Jersey. The review was commissioned jointly by the Chief Minister's Department and Economic Development Department. It has been undertaken independently by Tera Allas, a recognised expert in innovation policy. Support has been provided by the States of Jersey Economics Unit.

The Terms of Reference agreed for the report can be found at Annex A.

2.4.1. Evidence-gathering process

The review is based on a comparative analysis of Jersey's innovation system, using an evidence-based approach. In line with this, the review undertook three separate evidence-gathering processes:

1. Use of existing data

   Considering the small size of the jurisdiction, Jersey is well-served by existing data. The review was greatly assisted by support from the Statistics Unit and Social Security Department / Population Office who provided the majority of the data for the review. Further data were provided by the Education, Sports and Culture Department, the Skills Board and the Economic Development Department.

2. Jersey Innovation Survey

   In order to supplement existing data, the review team designed a survey which was undertaken by the States of Jersey Economics Unit. The survey was sent to over 500 businesses, with more than half of these responding. The survey included a mix of qualitative and quantitative questions. The survey is attached as Annex B and a detailed analysis can be found at Annex C.

3. Interviews

   To support the data, structured interviews were carried out with over seventy local firms and stakeholders from the business community. A range of sectors were covered – including retail, hospitality, agriculture, financial services, construction, telecommunications, digital, aquaculture and manufacturing firms. The full list of interviewees is included at Annex D, while the discussion guide for the interviews is attached as Annex E and a summary of the suggestions made by interviewees at Annex F.

2.4.2. Framework for analysis

The review undertook a comparative analysis of the performance of Jersey in relation to the six key areas of successful innovation systems:

1. **Money**: the amount of expenditure invested in innovation in the economy
2. **Talent**: the skills and people available for generating and delivering innovation
3. **Knowledge**: access to the stock of ideas, expertise and collaboration to drive innovation
4. **Business environment**: ease of and incentives for innovating
5. **Science and innovation policies**: government's policies to enhance innovation
6. **Innovation outputs**: impact of innovation on the economy

Within each of these areas, a number of indicators were chosen on the basis of their potential importance to Jersey's innovation performance and based on availability of existing data, or the potential to collect data for Jersey. Each of these indicators was scored, on a quantitative basis where possible, for Jersey and as many of the comparators as possible – with Jersey awarded a high, medium or low rating for each.

It is important to note that the indicators were not necessarily given equal weight: the overall rating for each area was done on the basis of the review team's judgements on the importance and robustness of each indicator.

2.4.3. Comparator jurisdictions

The comparative analysis considered twelve jurisdictions – Jersey plus eleven comparators chosen by the review team. These eleven were chosen on the basis of some similarity to Jersey: the majority have relatively small populations (though all considerably larger than Jersey) and many have significant finance sectors. All are developed economies with service-driven business sectors and significant export orientation. They are either considered to be innovation-leaders or are competing with Jersey to become innovation-leaders. The choice of comparators also reflects those jurisdictions for which data was available on the chosen indicators.

All the chosen comparators are top performers relative to the global average, and all are likely to be in the top quartile even when stage of development is taken into account. All are classified as stage three ("innovation-driven") of the World Economic Forum's three stages of development – among only 37 of 144 economies considered to be at this stage. This means that if Jersey were to score average among these comparators then this would still be significantly above average globally. The review team intentionally chose to set the bar high and compare Jersey's performance to global leaders, as these are the jurisdictions with which Jersey is competing. All mentioned above, all the chosen comparators are larger than Jersey so while the indicator analysis is key to the evidence-based approach of the review, caution is needed when drawing conclusions from direct comparisons.

A relatively large number of comparators were chosen, in order to counter lack of data for some comparators on some indicators. For a small number of indicators, Jersey could only be compared with the UK but, where possible, the UK has further been compared with the other comparators to try to evaluate Jersey's performance more widely.

Table 2 - Attributes of comparators

Comparator	Region	Population (million)	GDP/ capita (USD)[2]	Finance sector as % of output[3]	WEF Ranking[4]
Jersey	Europe	0.1	58,000[5]	42%	N/A
Cyprus	Europe	0.9	27,000	9%	58
Estonia	Europe	1.3	19,000	3%	29
Hong Kong	Asia	7.2	38,000	16%	7
Iceland	Europe	0.3	48,000	9%	30
Ireland	Europe	4.6	51,000	10%	25
Israel	Middle East	8.1	36,000	5%	27
Luxembourg	Europe	0.5	110,000	27%	19
Malta	Europe	0.4	24,000	8%	47
Singapore	Asia	5.4	56,000	12%	2
Switzerland	Europe	8.0	85,000	15%	1
United Kingdom	Europe	64.1	42,000	8%	9

Sources: International Monetary Fund – World Economic Outlook database April 2015; World Economic Forum World Competitiveness Index 2014/15; OECD National Accounts; national statistics agencies

[2] Current prices, market exchange rates
[3] All data from 2013, except Hong Kong (2012)
[4] Overall ranking for 2014/15 in the World Economic Forum World Competitiveness Index – out of a total of 144.
[5] Based on 2013 GDP and the mid-point of 2012 and 2014 population estimates.

Section 3 - MONEY: INVESTMENT IN INNOVATION

Indicator	Description	Jersey score	Leading comparator	Leading score
M1	% of companies in innovative sectors engaging in in-house R&D	72%	Jersey (Ireland)	(64%)
M2	Government-financed Business expenditure on research and development, as a % of GDP	0.01%	Estonia	0.12%
M3	Spending on information and communication technologies as % of GDP	7.9%	Jersey (Switzerland)	(3.3%)
M4	Availability of debt funding for innovative growth firms	Qualitative	N/A	
M5	Availability of equity funding for innovative growth firms	Qualitative	N/A	

Please see Annex G – Comparative analysis for further detail behind the indicator scoring

Overall rating: **Strength** Neutral Weakness

3.1. Money is a key enabler for innovation

Money is a key input into all stages of innovation. It buys both new knowledge – for example in the form of research and development (R&D) – as well as enhanced human capital to exploit new technology and ideas. There is considerable evidence that firms investing in R&D are significantly more effective in also turning other entities' scientific discoveries into commercial success. Investments into broader intangible assets, such as intellectual property and brands, are also a key driver of innovation and can have significant spillover benefits (Haskel, 2012).

Early-stage research by its nature has only tenuous links to any future revenue-generation, but is vitally important to identifying and developing the emerging technologies of the future – particularly those technologies which are likely to have a profound impact on the economy and society. For innovation to flourish, money needs to must be available to fund this research and the subsequent development even in the absence of any immediate returns.

Even where an idea for a new or improved product is developed at little or no financial cost, money can still be an important driver in taking advantage of the new idea either by developing it further to turn it into a useable product that can be manufactured at an affordable cost or by putting in place the necessary structures (e.g. production facilities, staffing, distribution channels etc.) required to exploit the idea.

Furthermore, investments allow firms to improve productivity by adopting innovations developed by others. This may take the form of utilising new digital technology, new production processes, new materials, new business models or new organisational forms. In all these cases, lack of access to the necessary funding or financing can create bottlenecks, slow down innovation or prevent it altogether.

3.2. An encouraging number of Jersey firms invest in R&D and innovation

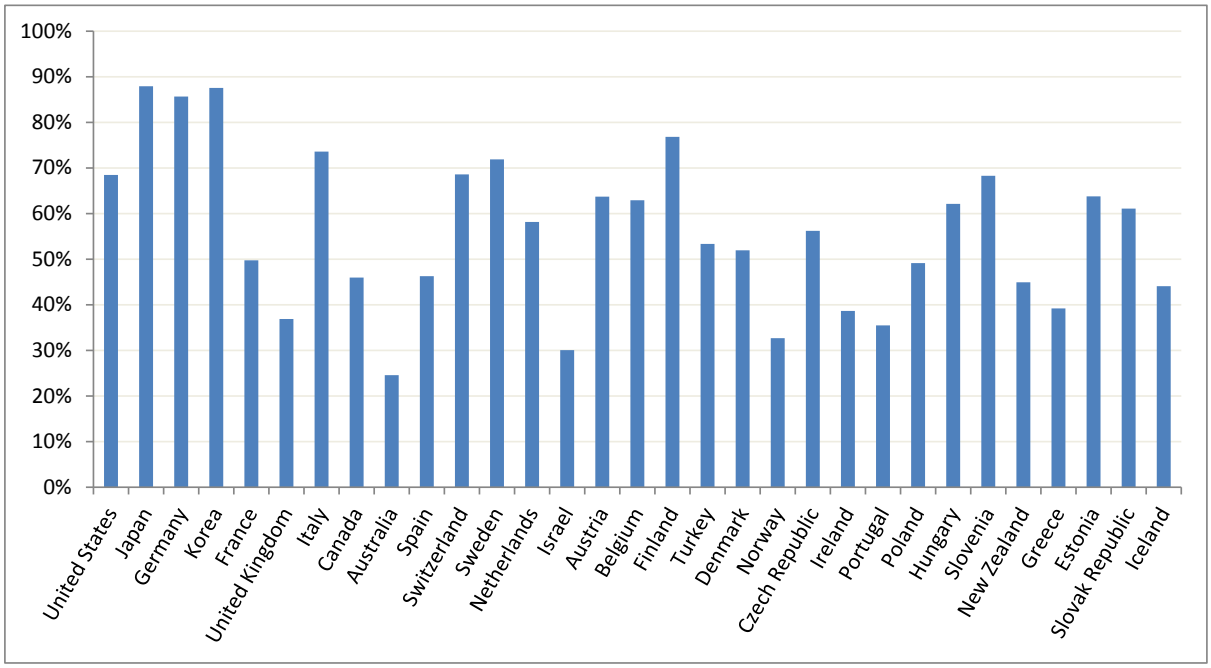
There are a plethora of studies and statistics on the availability and importance of sources of finance for innovation in the economy. These can be categorised into two groups: indicators about the amount of investment actually taking place; and assessments of the availability of funding for potential investments.

A range of quantitative indicators can be used to benchmark investment in innovation in more detail. While expenditure on research and development (R&D) is only a part of innovation expenditure as a whole, it is the most easily measured and compared. One of the most widely used definitions is that by the OECD:

> *"Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications"*
> (OECD Frascati Manual 2002)

Investment in R&D in Jersey might be expected to be quite limited, due to the factors discussed in section 2.2 – in particular the limited size of the manufacturing sector. Figure 3 shows manufacturing's share of business expenditure on research and development (BERD) in OECD countries with the countries ranked by the level of BERD (largest spenders to the left). The top five countries by BERD all have in excess of 50 per cent of their BERD carried out by the manufacturing sector with three of these high performers - Germany, Japan and Korea - having over 85 per cent invested by the manufacturing sector.

Figure 3 - Proportion of business expenditure on research and development which is undertaken in the manufacturing sector



Source: OECD. Switzerland data for 2012, all others 2011. Excludes Luxembourg.

While it is not possible to measure BERD for Jersey, survey evidence suggests that a large number of firms in Jersey are investing in research and development. Within innovation active sectors[6], 72 per cent of firms

[6] Based on the European Commission definition (Commission Regulation No 1450/2004) which identifies the minimum sectors for which innovation statistics must be collected. This has since been updated in 2012, but the 2004 list has been used to allow it to be applied to Jersey's current system of industrial classification.

stated that they had invested in research and development. This is higher than might be expected, given the Jersey-specific factors outlined in section 2.3 above. The survey question was based on the following definition: *any creative work undertaken within your business that increases knowledge for developing new and improved goods or services and processes.* There will inevitably be some differences in the understanding of this between firms and between comparators.

However, expenditure on research and development is just a small part of innovation expenditure as a whole. It is difficult to measure expenditure on broader innovation, but an alternative measure is investment in intangible assets including training, marketing or design. Jersey does not collect data on investment in intangible assets, but as a proxy for this it is possible to compare investment in Information and Communications Technology (ICT) as a proportion of GDP. Responses to the survey suggested that firms in Jersey spend almost 8 per cent of GDP on ICT, much higher than any of the comparator countries for which data were available. While this may be an overestimate due to the relatively large bands used for this question and due to Jersey data being significantly more recent than for comparators, it does not indicate that firms in Jersey are underinvesting in ICT.

3.3. Finance is available for businesses in Jersey

Overall, while quantitative metrics are unavailable, access to finance for innovative businesses in Jersey appears reasonably strong, relative to comparator jurisdictions. The forthcoming access to finance study for Jersey (OCO, 2015) states that *"there is nothing to suggest that high growth potential businesses are more or less disadvantaged in being granted finance in Jersey than in other jurisdictions."* While the report does not specifically consider funding for innovation, this is likely to be an important element of funding for high-growth firms.

Many of the consultees interviewed for the innovation review suggested that Jersey benefitted from strong availability of funding from private individuals. Most consultees (though not all) also thought that this investment came with the necessary mentoring, support and experience from locally-based investors who have been successful in business themselves. While there was some concern that funding networks might be hard to access initially, bodies such as Jersey Business were reported as being able to help and the small size of the community meant that once initial contacts were made, it was easy to tap into the wider network of potential investors. While funding is available, this does not mean it is always obtained, partly due to the lack of business planning and pitching skills which is covered in section 3.5.

There are also some more formalised private sector funding networks on the Island. Although these are primarily based on Jersey to provide investment opportunities to local investors, they are also open to local companies seeking finance. The OCO review recommends that government supports the development of a peer-to-peer lending network in Jersey.

In terms of bank funding, OCO found that it was priced largely in line with UK pricing while it is also clear that some firms get debt finance directly from the UK. There are mixed reports about availability of equity finance from the UK, but there is clearly some availability, with consultees suggesting UK-based funds would be open to investing in Jersey firms if quality business propositions were available. Jersey firms have also taken advantage of listing either locally (on the Channel Islands Stock Exchange) or on UK-based exchanges, and have been successful in attracting crowd-funding.

A number of interviewees mentioned that Jersey lacked a specific tax incentive for investors, pointing to the range of schemes available in the UK (see Box 1). Cowling et al (2008) evaluated the economic impact of two of these schemes – the Enterprise Investment Scheme (EIS) and Venture Capital Trusts (VCTs) and found that their impact on firms was very small. Discussions with financiers and entrepreneurs suggested that the

constraint in Jersey is more related to the lack of investible opportunities rather than incentives for financiers. It is not clear, therefore, whether the introduction of tax incentives for investment would result in any significant increase in funding for innovation. Introduction of any such scheme may also be in contradiction to the Strategic Plan objective of having a tax system which is "low, broad, fair and simple", as the rules and legislation surrounding the existing schemes in the UK are complex. There is no robust evidence that Jersey's tax environment is an inhospitable one for investors or that it is preventing innovative businesses ideas from getting funding. Income tax is low and there are no capital gains or inheritance taxes, this is covered further in Section 7 - Science and Innovation Policies: government's policies to enhance innovation.

Box 1 – UK tax incentive schemes for investment

Enterprise Investment Scheme (EIS) – The EIS scheme offers a range of tax reliefs to investors who purchase new shares in smaller higher-risk trading companies. Income tax relief is available at 30% of the cost of the shares while there is also relief from capital gains tax.

Venture Capital Trusts (VCTs) – VCTs offer tax reliefs for individuals to invest indirectly in a range of small higher-risk trading companies whose shares and securities are not listed on a recognised stock exchange. The investor is again entitled to income tax relief at 30% of the value of the investment and relief from capital gains tax.

Seed Enterprise Investment Scheme (SEIS) – The SEIS scheme is modelled on the EIS scheme but is aimed at start-up and early stage companies and offers more significant reliefs – including income tax relief at 50%.

3.4. However, government support for innovation is low and potentially sub-optimal

The main instrument of government direct funding for innovation is the Innovation Fund, though the low tax environment is also likely to be supportive which is covered in Section 7 - Science and Innovation Policies: government's policies to enhance innovation. The Fund has now been in operation for almost two years and has been investing in projects that are supporting a wide range of activity. Consultees welcomed the Innovation Fund and believed that government providing funding for innovation was a positive development, though there were some concerns over the specifics of the Fund's operation. For example, some consultees felt that the process took too long or that grants, rather than loans, would be a more appropriate instrument for government support for innovation.

Further, many consultees were of the view that the Innovation Fund has a very low risk profile and invests only in established firms with an established revenue stream. This perception, however, is not accurate. Of the seven investments which the Innovation Fund Board have recommended to date, five have been either pre-revenue or pre-profit with the other two helping to fund significant growth plans via expansion into new areas of business. It is understood that the Innovation Fund Board operates on the basis of a risk profile of 50/50 – whereby it is accepted that up to 50 per cent of the companies it invests in may not succeed.

It is, however, the case that the activity of the Fund is relatively small compared to the size of the economy. The Fund invested just under £1 million in 2014, representing approximately 0.02 per cent of GDP. Assuming that less than half of this was invested in R&D, government-funded BERD is at most 0.01 per cent of GDP, in contrast to between 0.02 per cent and 0.12 per cent in the comparator jurisdictions. There is some evidence that the activity of the Innovation Fund is accelerating, with the Board recommending a larger sum of investments in the first half of 2015 than had been recommended in the whole of 2014. However, the total budget of £5 million remains small relative to the Jersey economy.

Moreover, the Innovation Fund has yet to invest at very early stages of development, e.g. proof-of-concept or feasibility stage. This is understood to be due to the independent Board's view of the quality of the applications, albeit the final decision on whether to provide funding rests with the Minister. Enhancing the quantity and quality of innovative and investible ideas on Jersey is addressed in Section 5 - Knowledge: access to the stock of ideas, expertise and collaboration to drive innovation. This type of proposal would likely require quite small levels of funding, but often carries a much more significant risk – and potentially a greater payoff in terms of both business growth and spillover benefits to the economy. Because of the risky nature of this type of proposal, and the spillover benefits which might be captured even if the project is not successful as a business venture, this may be an area which is more suitable for grant-funding than debt-funding.

Investing in projects at this stage would appear to be absolutely within the existing remit of the Innovation Fund as approved by the States Assembly – and support via grant is also possible, where there is a justification as to why loan-funding is not appropriate. However, if the States of Jersey wishes to enhance the support available to this particular segment of demand for finance, this may require some specific direction to the Board of the Innovation Fund, for example:

- adopting a different risk profile for this type of application;
- being open to providing a large number of smaller awards for very early stage ideas;
- adopting the principle of proportionate effort to these smaller awards – on the part of both the applicant and government;
- acceptance that grant funding may be more appropriate for a number of these proposals.

Recommendation 1: Government should ensure the operation of the Innovation Fund is appropriate to provide support at all relevant stages of development of an innovative idea, including considering whether some changes need to be made to make the funding more suitable for earlier stage ideas.

A recent analysis by UK Department for Business, Innovation and Skills (BIS) concluded that support from government substantially increased innovation performance for both SMEs and large firms in the UK, with no evidence of deadweight[7] (BIS, 2014b). Given that the amount of government funding for innovation is significantly higher as a percent of GDP in many comparator jurisdictions, the States should consider whether the current size of the Innovation Fund is sufficient to provide an appropriate level of support for innovation – particularly if the Fund is to provide additional finance for earlier-stage ideas. When the Fund was set up, the States envisaged bringing forward a further Proposition to develop Phase 2 of the Fund and introducing the ability to make equity investments in firms. Development of this second phase should be based on an evaluation of the performance of the Innovation Fund to date.

There may be a case for this evaluation to be carried out by an independent expert who can consider whether the operation of the Innovation Fund and its terms of reference meet best practice and whether they are appropriate to maximise the impact on innovation, given the specific nature of the Jersey economy.

Recommendation 2: Government should evaluate the effectiveness of the Innovation Fund after two years of operation, reviewing, and if appropriate changing, its size, scope and type of funding (e.g., loans, grants or equity investments).

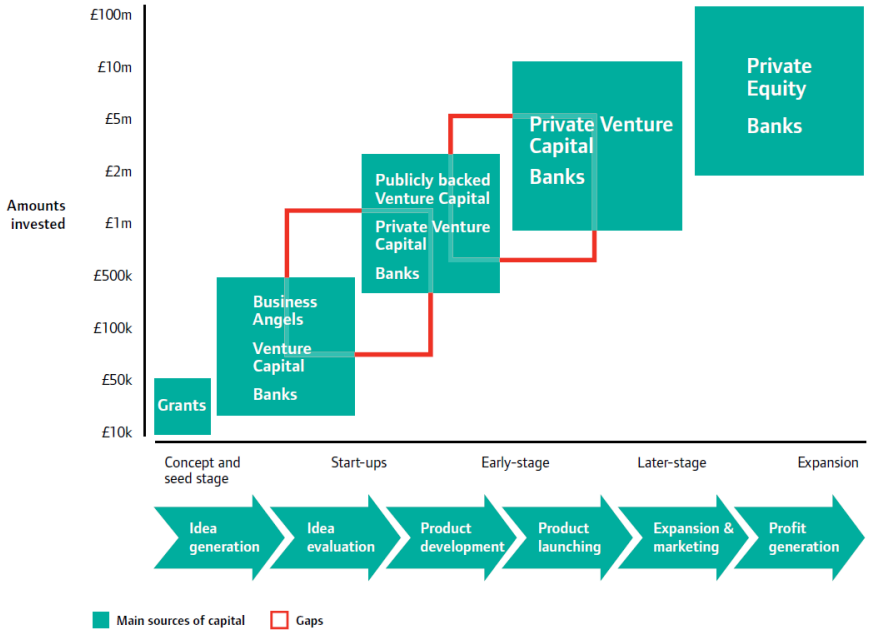
[7] Deadweight is the extent to which a firm would have carried out the activity anyway, in the absence of support.

3.5. Access to a clear funding pathway and related support is needed

In consultations, there was a widespread sense that Jersey lacks a clearly identified continuum of support for innovative firms.

Figure 4 illustrates an example of a potential continuum of support, demonstrating that different types of finance are typically appropriate at different levels of firm development and different sizes of investment. It may well be that such a continuum of support exists in Jersey but it is not well articulated nor necessarily well known to those seeking funding or finance.

Figure 4 - Access to finance continuum in the UK



Source: NESTA (2009a): Reshaping the UK economy – the role of public investment in financing growth.

Experience in other jurisdictions suggests that access to innovation funding is very often a serious bottleneck, so it would seem likely that entrepreneurs and investors assume that the same is the case in Jersey. Consultees suggested that potential innovative inward investors in particular would require a clearly defined route to accessing finance throughout their lifecycle and may be put off relocating to Jersey if they are not familiar with the financing opportunities on the island. .

Whilst Digital Jersey and Jersey Business both provide support and advice to help firms to access finance, there would be benefit in a more structured demarcation of the sources of finance available in Jersey. This could be used as both an advisory tool and possibly as a marketing tool for Locate Jersey to use when trying to attract potential inward investors.

Recommendation 3: Government should work with delivery partners (Jersey Business and Digital Jersey) to clearly depict and sign-post the range of funding and finance available for innovative firms in Jersey.

The Access to Finance review recently undertaken by OCO identified that some firms are failing to get finance due to the poor quality of their business plan, rather than due to the viability of the business idea itself. This message was echoed in the interviews conducted for the innovation review: it was felt that some businesses'

lack of access to finance reflected their lack of skills and experience in presenting the business as an attractive investment opportunity. The OCO review recommends focussed support is provided to overcome this issue, which would seem to be a natural role for Jersey Business.

Consultees also suggested there was a misconception that Jersey Business was primarily a start-up agency. There was limited recognition of their role in providing advice and support for innovation or more widely supporting firms in implementing growth or productivity enhancements. It is not clear whether government or Jersey Business have tested awareness of Jersey Business's services.

Recommendation 4: Jersey Business should measure the level of awareness of its services, including those supporting businesses in funding, financing and delivering innovation and growth, and set targets to improve awareness and grow its client base where appropriate.

The evidence-gathering process for the Innovation Review also identified issues with the aftercare for successful recipients of government funding. Recipients of Innovation Fund support are currently required to submit quarterly monitoring reports, though this is not followed up with any aftercare or support. It would seem sensible for the Innovation Fund to sign-post applicants to use the support services of Jersey Business, where they haven't already been to Jersey Business for application support; and for Jersey Business to proactively reach out to firms who have obtained funding from other sources, to provide this support and mentoring if required.

Recommendation 5: Government should ensure that ongoing monitoring of recipients of support from the Innovation Fund is supplemented by ongoing support and aftercare. This should also be extended to firms who have obtained finance elsewhere.

3.6. There may be some regulatory issues for specific funding instruments

Some consultees suggested there were some regulatory barriers to setting up certain types of funds in Jersey, which may be restricting the availability of finance to local innovative firms. It is not clear whether this is an issue which can be easily overcome by using a different structure to the fund, or whether this poses a constraint to the ability of local firms to raise finance for innovation. A more thorough understanding of this issue is therefore required, including an assessment of why these types of funds are not possible in Jersey and whether this has an impact on innovation or enterprise.

Recommendation 6: Government should work with the Jersey Financial Services Commission to identify any specific types of funding vehicles which are not possible in Jersey and identify whether this restricts the availability of finance for innovative firms.

3.7. Conclusions

An encouraging number of Jersey firms invest in research and development and broader innovation. The general environment for accessing finance appears, if anything, more favourable than many comparator jurisdictions.

However, there are no countries where innovative businesses don't face some barriers in getting their ideas and growth funded and financed. Therefore, government support and funding always play a key role in accelerating innovation.

In Jersey, the areas which require particular strengthening are better sign-posting of available finance and business support; using existing support (e.g., skill building and mentoring) to enhance the quantity and quality of innovative and investible ideas; and better co-ordination of support to firms both before and after they access innovation finance.

Given the very small quantum of government-funded innovation, Jersey may also want in time to consider providing further funding to the Innovation Fund, subject to an evaluation of its effectiveness in delivering economic benefits. Regardless of its size, the Innovation Fund should be open to investing in ideas at all, including very early, stages of development.

Section 4 - TALENT: HUMAN CAPITAL TO DELIVER INNOVATION

Indicator	Description	Jersey score	Leading comparator	Leading score
T1	Government expenditure on education as proportion of GDP	2.5%	Malta	8.0%
T2	Business perceptions of the quality of the education system	4.0 / 7	Switzerland	6.0 / 7
T3	Proportion of population that has achieved tertiary education	36%	Israel	46%
T4	Proportion of degree awards in science and engineering	19%	Hong Kong	34.7%
T5	Business perceptions of capacity to attract/retain talent	3.6 / 7	Switzerland	6.0 / 7
T6	Firms' leadership and management capabilities	Qualitative	UK / Singapore	3.0 / 5

Please see Annex G – Comparative analysis for further detail behind the indicator scoring

Overall rating: Strength | Neutral | **Weakness**

4.1. Talent is a vital part of the innovation system

A large pool of high-quality human capital is a major feature of effective innovation systems. Each stage of innovation requires talented and motivated people to deliver. Specific skills are needed for the discovery of new ideas, development of new products from those ideas and bringing those products to market successfully. Evidence shows that firms that employ more graduates and staff with science, engineering, maths, design and digital skills are more likely to be innovative.

This implies that an effective innovation system requires a wide range of skills. Basic literacy, numeracy, problem solving and critical thinking skills form a foundation for all types of business activity. Digital and IT skills are an increasingly important enabler and catalyst for product, service and process innovation. Creative and design skills are essential in crafting and communicating a superior customer experience. The initial stage of discovery and development will often require people with specific technical skills; and softer skills are equally critical for managing the process and maximising the economic impacts.

4.2. Jersey has a well-educated population by international standards

In common with most of the developed world, Jersey has on-the-whole a relatively well-educated population. Jersey's system of primary and secondary education closely mirrors that of the UK, with broadly similar outcomes. The UK's performance in turn is generally considered generally average among developed countries.

Whilst it is difficult to compare skill levels, it is possible to look at levels of education. Census data from 2011 show that 36 per cent of the 25-64 population of Jersey had completed higher education. This is broadly similar to the rate of most of the comparators but falls short of leader Israel (see Annex G for the detailed comparative analysis).

Jersey sends 400 students a year to begin university studies outside the Island, but there has recently also been an increase in local provision such that it is possible to study degree-level programmes in financial services, nursing, law, business, construction and information technology amongst others. These programmes have largely evolved to meet local demand from prospective students but in some cases, e.g. nursing and construction, there has also been an imperative of increasing the local availability of specific skills.

Consultees to this review were encouraged by the expansion of higher education locally, in particular welcoming the development of the Information Technology for Business degree programme at Highlands College. While this is the first degree programme in science, technology, engineering and mathematics (STEM) offered locally, data show that many Jersey students go on to study these subjects, primarily in the UK.

UK data show that 38 per cent of graduating students from Jersey gain awards in STEM subjects – compared to 42 per cent of UK graduates as a whole. However, on a narrower and internationally comparable measure[8], less than 20 per cent of Jersey graduates might fall into the science and engineering category. Relative to the comparators, this falls significantly short of Hong Kong but also lags behind the UK, Estonia, Cyprus, Ireland and Switzerland.

Further, it is not known what proportion of these STEM graduates return to work in Jersey and there are no data on the subject areas studied by the local degree-qualified workforce. While some consultees suggested incentives might be provided to attract back some Jersey-born engineers (or to attract experienced coders/programmers), this is most likely to be effective if it is business-led or linked to other innovation initiatives, such as Digital Jersey's proposed 'Jersey Sirius programme' covered in Section 7 - Science and Innovation Policies: government's policies to enhance innovation. Consultees did not give a sense that there are a large number of unfilled vacancies for these roles, but did raise issues around Jersey's immigration policy (see Section 4.5).

4.3. Jersey's education system does not fully meet the needs of an innovative economy

It has proven difficult to make objective international comparisons of the quality of the outputs of Jersey's education system, but it is possible to look at the inputs on a very high level. While there are many caveats to this comparison[9], it is clear that Jersey's government expenditure on education could be considered low relative to comparators. This is corroborated by survey data showing that businesses in Jersey rank the education system as being mediocre in terms of its ability to meet the needs of a competitive economy.

The evidence from consultees was mixed – with many business representatives stating that the education system had produced strong candidates who were beneficial to their business, but many others stating that school-leavers were not sufficiently ready for work. More specific concerns surrounded the lack of focus on creativity and design skills in education, or that the education system needs to be more engaged with technology and business.

While individual experiences will differ, what is clear is that the education system needs to be responsive to the needs of businesses. The Skills Board acts as the intermediary currently, providing advice to government on skills and education policies. However, it is understood that the Education Department is currently developing a further enhancement of this interface, known as the Business Education Partnership.

[8] The UK figures include medicine, dentistry, subjects allied to medicine, biological sciences, veterinary science, physical sciences, mathematical sciences, computer science and technology. On a much more narrow measure, only 13 per cent of UK graduates are in science and only 9 per cent in engineering – an aggregate total little over half of the wider figure. If Jersey had a similar share, this would mean only c. 19 per cent of graduates would be science and engineering on this more narrow measure.

[9] Expenditure on education would be expected to vary based on the public/private split of funding and based on the proportion of the population that is of school age.

Further, under the proposed reorganisation of government, the *Department of Education, Sports and Culture* is to become the *Department of Education and Skills*. There appears to be some lack of clarity over what this will mean for policy responsibility in practice as there is no proposal to transfer additional functions to the department. If there is to be any reorganisation of education and skills policies within government, it is important that policy is set in the context of government's economic objectives which might be best achieved by cross-departmental oversight in the form of the Economic Policy sub-group of the Council of Ministers.

Recommendation 7: Education and skills policy needs to be set within the context of the States' economic objectives and in consultation with industry. The Education Department should work with businesses to create and implement an action plan to raise standards and align the curriculum with future skills requirements of innovative businesses, including problem solving, design, STEM subjects and entrepreneurship.

4.4. There is room for improvement in workplace skills

Having the right skills for innovation goes much wider than just qualifications. On-the-job training and learning is key to enabling teams to perform at their best and deliver business results. In addition to creative and technical skills, entrepreneurs need the skills to conceptualise new business models and articulate these clearly to potential investors and partners. Indeed, as indicated in the previous section, it appears that it is the quantity and quality of business ideas presented to funders and investors, rather than access to finance, that is more often the limiting factor for innovation in Jersey.

While there is help available to individuals on this (e.g. support from Jersey Business and Digital Jersey and informal support from members of the Innovation Fund Advisory Board) consultees suggested that there was significant room for improvement. Part of the issue was lack of awareness of the support available.

Recommendation 8: Government and delivery partners should clearly describe and promote the business support, including skills development, available to entrepreneurs from government and private sector sources. This should include measuring and setting targets to improve awareness of the support available.

For example, the Skills Accelerator Programme has awarded 172 grants (as of June 2015), totalling approximately £350k. The grants are available for employers to develop the skills of their staff. While the level of demand for the programme is encouraging, the data currently available do not measure the impact these grants may have had.

Recommendation 9: Government should evaluate the performance of the Skills Accelerator programme and ensure that funding continues to be available where required – through either continuing the Skills Accelerator or offering further support to ensure lack of funding does not prevent employers from making appropriate investments to develop the skills of their employees.

Recent research also suggests the quality of leadership and management skills in Jersey could be improved. The review by the Institute of Employment Studies (2015) found that as many as a third of sole traders in Jersey identified a weakness in their own leadership and management skills which restricted the success or growth of their business. The study found statistically significant relationships between some management

and leadership development activities and organisational performance. While organisational performance was related to financial results, it is likely that similar correlations would be seen between leadership and management skills and the capacity of firms to innovate. The review identified significant shortfalls, with almost half of managers and leaders in Jersey having had no management development activities in the last three years, and over a quarter of organisations not providing any activities.

On the basis of the research undertaken, it is difficult to make international comparisons. Having said that, there is nothing in the report to suggest that leadership and management skills are, on the whole, more developed in Jersey than the United Kingdom. The UK is part of the World Management Survey and scores largely similarly to the other comparators being considered for this report – so there is no evidence to conclude that Jersey's performance would be any better or worse than average.

Recommendation 10: The Education Department should identify who is responsible for developing a plan to address the shortfalls in leadership and management skill identified in the research commissioned by Skills Jersey.

Consultees also pointed to a lack of digital awareness at board level in Jersey. This leads to a culture of technology being seen as a utility, rather than being incorporated into firms' strategies. Technical and digital skills are an important part of the skills required for innovation and growth. Government could seek to counter this constraint by providing a matching service, or potentially funding, to inject this experience and knowledge into firms at board level.

Recommendation 11: Government should develop a mechanism to encourage firms to bring some digital and technological expertise in at board level, for example Digital Jersey sourcing a non-executive director plus part-funding for the initial twelve months.

4.5. Jersey imports skilled workers from outside the Island

The 2011 Census showed that approximately half the Jersey population were born outside the Island, but for the 25-64 population this is much higher at 62 per cent. This means that only a minority of the labour force will have been schooled in Jersey, and the skills of incoming migrants are likely to be just as important as the skills of school-leavers for innovation in the economy.

The Island's labour force is constantly changing, with figures showing that over 700 people were issued with Social Security numbers during the first three months of 2015 – with the majority of these likely to be incoming migrants. While the interim population policy sets a planning assumption for net migration of +325 per year, modelling by the Statistics Unit suggests that this results from larger underlying flows of migrants of approximately 2,000 each year moving into the Island, and around 1,700 leaving. This provides an opportunity to align the skills of incoming migrants to the needs of an innovative economy.

The migrant population as a whole possesses a higher level of education from the locally-born population – with 37 per cent of the migrant population aged 25-64 being educated to degree level, compared to 33 per cent of the locally-born population (2011 Census). While this is somewhat influenced by the age profile of migrants, it is clear that migrants bring valuable skills to the Island which enhance the innovation capabilities of the economy. Consultees suggested that the migrant community and returning Jersey-born community not only brought skills learned elsewhere but also brought a diverse range of experiences which were a vital driver of innovation.

However, some consultees also felt that the Island's current migration controls were constraining the ability to recruit staff required by innovative businesses. While some of this was based on perception, there also appeared to be some real cases where businesses were being prevented the positions required to grasp opportunities to be more innovative. Overall views were mixed, with some feeling that the situation had improved for skills which were genuinely not available locally; and others feeling that migration controls were putting an artificial constraint on growth ambitions. However, survey data suggest that Jersey scores very poorly on business perceptions of the ability to attract and retain talent, with an employment-weighted average score of 3.6 out of 7 – ranking tenth out of twelve on this indicator[10], far behind leading countries Switzerland, Singapore, the UK, Hong Kong and Luxembourg and close to the global mean average.

The survey revealed quite negative perceptions of Jersey's ability to attract and retain migrants. Of the twelve jurisdictions considered in the comparative analysis Jersey ranked tenth, above only Israel and Estonia. Businesses in Switzerland, Singapore, the United Kingdom and Hong Kong all considered their jurisdiction to be considerably more attractive for talented people.

If migration is to be controlled, the impact on the economy will depend on the type of migrants attracted. It is clear that the demand for migrant labour is greater than the level at which the States has decided is appropriate for the Island and thus difficult decisions need to be made about how to ration this to maximise the benefit to the economy and society. To the extent that the Control of Housing and Work Law is able to influence the type of migrants coming to the Island to take up work, it is important that this is prioritised to the needs of an innovative and productive economy.

Recommendation 12: Government should ensure that migration is targeted at those opportunities that have the most potential to contribute to an innovative and productive business base, for example by prioritising posts which will bring entrepreneurial skills, STEM subjects or the development of the leadership and management capabilities of the workforce.

As part of this prioritisation of inward migration, there could be benefits in entirely opening up migration for certain skills. This could involve automatically (and quickly) accepting any application for licensed posts in individual sectors or sub-sectors or potentially for specific job titles. For example, the Population Office could be instructed to grant all applications for key staff for companies in the FinTech or eHealth sector, or granting all applications to recruit experienced software developers. This could be on a temporary basis at first, subject to review after twelve months to consider whether to extend the policy either for a further period of time or to further areas. The review should include an evaluation of economic costs and benefits of the pilot policy.

Recommendation 13: Government should make licences to employ migrant labour freely available for key posts in certain sectors or for specific skills, on a pilot basis to be reviewed after twelve months.

During consultations, some stakeholders were concerned with the effort and length of time it could take to get permission to fill a post with a registered or licensed employee. While there were some experiences where this was achieved within days, others reported waiting for many months. As a result, there were concerns about consistency of the speed of decision-making and the very real constraint the time lag put on some businesses'

[10] This indicator is based on two indicators in the World Economic Forum Global Competitiveness Index – ability to attract talent and ability to recruit talent. For Jersey, this was combined into one question and compared to the average of the two indicators for the comparator jurisdictions.

growth. For small entrepreneurial firms, the process was also seen as burdensome, diverting resources away from business-critical activities.

While the length of time taking to process applications is likely to reflect the complexity of the decision, there could be a case for more transparency. With many firms stating they would prefer a "quick refusal", more visibility of the average, minimum and maximum processing times may aid decision-making within firms. Further, if processing times were published there could also be targets for certain areas, where the States of Jersey sees potential for improvement. Finally, it is critical that Locate Jersey and other authorities continue to actively manage the reputation of Jersey as an island that welcomes global talent.

Recommendation 14: The Population Office should publish annual high-level statistics for average time taken to process applications for licensed/registered staff and set ambitious targets for improvement where appropriate.

Further, as indicated above, some of the issue may be about perception of Jersey as not open to attracting and developing new and innovative businesses. There is a misconception that Jersey does not actively target entrepreneurs but during interviews it was clear that Locate Jersey in particular have been working hard to change this perception and to attract a variety of new businesses to the Island. It is important that this work continues, and that government continues to work with Locate Jersey, Jersey Business, Digital Jersey and Jersey Finance to ensure there is a clear message that Jersey is welcoming and open to business.

Recommendation 15: Government and delivery partners should continue to work together to capitalise on opportunities to raise and promote Jersey's image as open for business and as a location of choice for entrepreneurs.

4.6. Conclusions

Despite the relatively highly-educated population on-island, access to the right talent and the skills of the workforce are a major constraining factor for Jersey's innovation performance. Given the small size of the jurisdiction, addressing this requires changes relating to both the education system and migration policy.

The education system should ensure it maintains high standards, builds skills that are relevant to innovation, enthuses students about entrepreneurship and continually adapts to meet the needs of businesses.

Migration policy needs to prioritise skills required by innovative and growing businesses. Policy and processes must be applied in ways that are business-friendly, transparent and predictable. Securing the right permissions should be swift and involve a minimum amount of bureaucracy.

Finally, given Jersey's reliance on imported talent, it is critical that its reputation as a welcoming and attractive location is maintained and enhanced. The States and Jersey Business, Locate Jersey, Digital Jersey and Jersey Finance need to continue to work together to capitalise on opportunities to raise and promote Jersey's image in this respect.

Section 5 - KNOWLEDGE: IDEAS AND EXPERTISE TO DRIVE INNOVATION

Indicator	Description	Jersey score	Leading comparator	Leading score
K1	Quality of scientific research institutions	Qualitative	Switzerland	6.3 / 7
K2	International collaboration on innovation by firms	Qualitative	United Kingdom	31.1%
K3	SME collaboration with higher education institutions	Qualitative	United Kingdom	19.6%
K4	Patent applications per million of population	37	Switzerland	1,031

Please see Annex G – Comparative analysis for further detail behind the indicator scoring

Overall rating: Strength | Neutral | **Weakness**

5.1. Knowledge assets are an essential element of the innovation process

The creation and diffusion of fundamentally new knowledge is essential for innovation. Equally important, if not more important, is the absorptive capacity of firms to exploit and adopt existing knowledge. For example, even in countries with a significant domestic science base, such as France, Germany or UK, 80-90 per cent of productivity attributable to technology transfer derives from foreign research (Crafts, 2012, p2). The innovation inputs discussed in the previous chapters, money and talent, are essentially there to both discover new knowledge and to absorb and apply it into commercially successful products and services.

The creation of entirely new knowledge is usually associated with publicly-funded scientific research in universities or research institutions. New knowledge is also generated by businesses and could range from discovery of a new material, discovery of a product which provides a new use for an existing material or discovery of a new way to manufacture or market an existing product. Both activities generate knowledge assets that can be leveraged for economic benefit – sometimes by anyone (e.g., in the case of publicly funded, freely available research), sometimes only by the creator (e.g., when the new knowledge is subject to intellectual property protection).

The industrial structure and size of Jersey, combined with the lack of local universities or research institutions, limits the type of knowledge which can be discovered on the Island. This does not mean that Jersey needs to set up a network of research centres or university facilities, but it does make international knowledge transfer and absorption even more important for the Jersey innovation system. This in turns puts a premium on collaborations: firms collaborating with research centres, with other firms and across borders. High-quality collaborations allow Jersey firms to adopt world-class technology despite the lack of local facilities.

5.2. Jersey has no significant local knowledge bases, but does have access to knowledge resources in neighbouring jurisdictions

While there is some provision of degree-level education on the Island (see Section 4 - Talent: human capital to deliver innovation), this is primarily teaching related to capability building and is unlikely to result in any significant creation of fundamentally new knowledge. During consultations, few interviewees identified any

business opportunities as a result of research undertaken locally – with stakeholders who were asked about access to local researchers being able to identify only market research firms.

Research in the finance sector seemed to take a very specific course, where significant research is undertaken locally into potential new products, but this was a collaborative effort between firms, often involving the government or the regulator where required, and there was stated to be no nexus to academic institutions. This research was generally taken in response to an identified customer demand.

However, Jersey's close linkages with the UK do provide some opportunities. The UK is host to some of the world's leading universities and boasts a world-class knowledge base and research communities (Elsevier, 2013). Consequently, it scores highly in relation to business perceptions of the quality of scientific research institutions – with only Switzerland scoring better amongst our comparator jurisdictions. The evidence-gathering process for this review showed that local firms were able to access institutions in the UK relatively easily. This included a number of SMEs who had developed linkages with UK institutions both through personal or business contacts and through approaching institutions directly following desktop research.

While local firms have collaborated with academic institutions based off-island, there is not a well-trodden path or support network to facilitate this. Government could be more proactive in supporting this with government agencies developing an awareness of academic institutions that have the appropriate specialisms and would be keen to collaborate with innovative firms in Jersey with the development of their ideas. This awareness and relationships should be actively integrated into support offered to innovative businesses.

While each of the institutions offering higher education are partnered with universities in the UK, there is no sense of these linkages being embedded into the economy – beyond providing accreditation of the locally-taught qualifications. It was clear from consultations that many thought Jersey should try to develop more linkages with top UK universities. The rationales for policy intervention to promote science–industry collaboration are strongly supported by evidence from a range of studies (Cunningham & Gök, 2012), so there is a strong rationale for Jersey to make more formal arrangements to give local firms the opportunity to exploit nearby resources.

Recommendation 16: Government should aim to develop targeted linkages and relationships with knowledge bases (e.g. Russell Group universities, Research Councils, Innovate UK) in key target areas as can be identified in consultations with industry, such as digital, finance and professional services; and integrate these into support provided by delivery partners.

5.3. Local firms have access to international collaborative opportunities

International collaboration can have significantly positive impacts on the level of innovative activities. It allows firms to tap into a range of resources and skills available elsewhere and can also have spillover benefits in terms of learning best practice from firms with whom they collaborate.

The level of international collaboration in Jersey is difficult to measure, but consultations suggested there were a number of local firms involved in collaborative projects with firms outside Jersey – particularly in the digital and telecommunications sectors. However, there was no sense that there was a culture of Jersey firms routinely seeking to overcome the limitations of a small number of local partners by seeking to partner with firms elsewhere. Some consultees suggested that international collaboration may be limited by the desire to maintain competitive advantage, even with sister companies in other jurisdictions; this was particularly the case in multinational firms in the finance sector where Jersey business units may compete with business units in other crown dependencies.

Given the size of Jersey, it could be expected that the level of international collaboration might be more significant, and there could be substantial benefits from encouraging further development of this. There are a number of UK programmes which Jersey could potentially explore to facilitate this kind of collaboration. For example, the UK's Catapult Centres provide an opportunity for businesses to collaborate with other businesses and academia to share research resources. These centres are an initiative of Innovate UK – a UK public sector body – but it is worth exploring whether Jersey firms can tap into these centres. Innovate UK also runs a number of engagement events and set of Knowledge Transfer Networks which could benefit Jersey businesses.

Recommendation 17: Government should develop support mechanisms for local businesses to collaborate, for example by exploring whether Jersey firms could take advantage of UK research and innovation collaboration programmes, such as the Digital Catapult Centre or Knowledge Transfer Networks.

A common theme from the Jersey business community was that Jersey could become a testbed for innovations from elsewhere. This could be a valuable opportunity to assimilate knowledge, in addition to providing a niche business area for Jersey, exploiting its small size and hence ability to be flexible and agile. Further opportunities exist in the potential development of clusters around specific innovations or groups of innovations, which therefore could lead to further knowledge creation in Jersey itself.

While the testbed opportunity was clear to a number of consultees, the mechanism was less so. The first step should therefore be for government to nominate a body or individual to explore opportunities for Jersey to be act as a testbed for innovations. Where opportunities can be identified, there could be a place for promotional activities – potentially tied in to existing trade visits. It is likely that this will be most successful with a specific sectoral or business focus – e.g., for digital or financial technology products or for sharing anonymised medical data.

Recommendation 18: Government should nominate an individual or body to explore opportunities to promote the Island as an opportunity to test innovations in specific areas where Jersey regulations and environment can provide a unique advantage.

5.4. Jersey individuals and companies do not register significant levels of intellectual property rights

One measure used as an indication of the new knowledge created in an economy is the number of patent applications made. Data from the UK Intellectual Property Office (IPO) suggest that over 2010-2012, an average of less than four patent applications were filed from Jersey to the UK IPO.

This is significantly less than any UK region, even after allowing for population. Jersey filed 37 applications per million of population – a quarter the level of the lowest UK regions (Northern Ireland and North East England) and just 10 per cent of the level of the highest UK region (South East England). Comparing this UK data internationally suggests that Jersey would probably be behind all the comparators on this metric, with the exception of Hong Kong.

However, given the industrial structure of Jersey, patent applications may not be an appropriate measure of the knowledge creation in the economy. Research from the UK (IPO, 2014) estimates that only 50 per cent of investment in knowledge is protected by intellectual property rights and only 10 per cent of that is protected

by patents. Some sectors, such as computer equipment, are highly patent intensive, whereas others (including many service sectors) are less focused on this form of IP protection.

During the consultations, some felt that the level of intellectual property created and held in Jersey was restricted by the nature of current arrangements for registration of intellectual property rights. This is discussed further in Section 7 - Science and Innovation Policies.

5.5. The Jersey economy has a limited number of well-developed clusters

Outside of the finance sector, there are few easily-identified clusters in Jersey. The European Commission defines clusters as:

> *"Clusters are groups of specialised enterprises – often SMEs – and other related supporting actors that cooperate closely together in a particular location."*

Source: EU Cluster Portal

While Jersey is becoming a hub for the location of headquarter or back office functions for extractive industries (mining, oil and gas), this is in its infancy and it is unclear to what extent these firms are inter-connected or if they have chosen to relocate for similar reasons – rather than chosen to co-locate with each other. Therefore while the development of this and similar hubs is encouraging, they could be seen more as an extension of the existing financial services cluster.

The States has made development of a digital cluster a strategic priority and this has led to the creation of Digital Jersey and the development of the Digital Jersey Hub. During interviews with consultees, there was consistent praise for the activities of Digital Jersey but there was a sense that the agency was struggling to find a clear focus, given its limited resources. This is a common issue identified by the OECD:

> *"It is not uncommon for policy makers to be vague and unrealistic about a cluster policy with expectations far exceeding resources and potential. It is also important that the public sector begins its policy with an exit strategy in mind."*
> Source: OECD – Cluster Policies (2010)

While it is likely to be an ongoing dialogue, it is important that government and Digital Jersey are clearer with each other about what they are trying to achieve, and indeed what it is possible to achieve. A large number of diverse activities – ranging from training to engagement events to policy development to attracting foreign investment – are necessary to build a successful cluster. These activities need to be prioritised with clear responsible owners, and progress tracked systematically.

One way to accelerate the development of clusters is to ensure that, in addition to start-up firms, there are a handful of established firms operating in the sector locally. In Jersey's case, this may require particularly active and targeted work by Locate Jersey and Digital Jersey to convince existing businesses currently operating elsewhere to relocate on the Island. For example, Jersey may wish to set a target to attract a specific number of established, growing digital companies to base themselves in Jersey over the next two years. Consultees suggested that groups of digital entrepreneurs could be taken to places such as Silicon Valley on a quarterly basis to gain an understanding of the potential funding and collaboration opportunities available there. This could be a good step towards ensuring that digital firms in Jersey are aware both of what is available and what is likely to be required of them.

There are clear signs that a digital cluster is beginning to materialise and the existing firms and individuals within the cluster must continue to be involved in informing the future direction for policy in this area.

Recommendation 19: Digital Jersey should continue to work towards the development of a digital cluster, but there needs to be a more clearly defined vision of what this cluster should look like and what actions and resources are necessary – agreed and tracked by government and industry.

5.6. Conclusions

The lack of local universities and research institutions and Jersey's industrial structure mean that its domestic knowledge assets are limited. This does not mean that Jersey needs to set up a network of research centres or university facilities, but it does put a particular premium on international collaborations.

Given its proximity to the UK – a leading research nation globally – Jersey is in an excellent position to tap into its expertise. The States should seek to collaborate with the UK's existing universities, innovation centres and networks and ensure Jersey businesses are aware of and can access these resources easily.

Jersey can also offer an opportunity to international researchers and businesses as a test-bed for new innovations. To turn this into a reality, it needs to identify areas where there is a business demand for a specific testing environment and then demonstrate flexibility and skill in implementing this at speed.

Section 6 - Business Environment: ease of and incentives for innovating

Indicator	Description	Jersey score	Leading comparator	Leading score
E1	New business density	4.5 per 1,000 working-age population	Hong Kong	28.1
E2	Ease of starting a business	18 days	Singapore / Hong Kong	2.5
E3	Firm-level technology absorption	3.9 / 7	Iceland	6.2
E4	Intensity of local competition	5.0 / 7	Malta / United Kingdom / Hong Kong	6.1
E5	Households with broadband connection	69%	Iceland	92%

Please see Annex G – Comparative analysis for further detail behind the indicator scoring

Overall rating: Strength | **Neutral** | Weakness

6.1. A business-friendly environment is essential to facilitate innovation

In the absence of a hospitable business environment, the motivation to introduce innovative products would be constrained. If potential entrepreneurs see barriers to exploiting their business idea then they will be less driven to bring the idea forward, or they may choose to develop their innovation elsewhere. Moreover, if there are many barriers to running a business, this may distract away from innovating and new business development, as managers are time-constrained with existing day-to-day business.

More broadly, the factors which make an effective innovation system are similar to those which promote business and entrepreneurship in general. Factors such as finance, taxation, regulation, skills, infrastructure and an effective legal framework are all important elements of the business environment which are also essential to facilitating innovation and the development of innovative businesses.

Survey respondents were asked to identify factors which have held back innovation in their company. Of the companies who responded to this question, Table 3 shows that almost half (weighted by employment) identified issues relating to skills, including difficulty recruiting non-local staff, and approximately one quarter identified regulation – particularly in the financial services and hospitality sectors. A number of these responses are reproduced in full in the survey analysis at Annex C.

Table 3 - Barriers identified by survey respondents

Category	% of respondents who identified barriers
Skills	44%
Regulation	26%
Cost of doing business	10%
Access to finance	8%
Economic climate	7%
Lack of demand	4%
Planning	2%
Connectivity	1%
Small local market	1%
Competition	1%
Procurement	0.5%
Other	17%

Source: Jersey Innovation Survey; % of firms who answered Q7 (review team categorisation of responses to free-text question)
Numbers do not add up to 100 per cent as many companies identified barriers in more than one area.

6.2. Jersey has a vibrant business community

It is clear that business and enterprise is a significant part of the culture and society of Jersey. There were 791 businesses started in 2014, of which 240 were limited companies. Assuming that a similar proportion were limited companies in 2012, this would be 4.5 businesses for every 1,000 of the working-age population[11]. While this is significantly behind Hong Kong, Cyprus and Luxembourg, it is in line with the rate of business starts in Ireland and above Israel and Switzerland. While this number is volatile year-to-year and excludes the significant number of sole traders who begin trading each year, it indicates that there is a reasonably dynamic businesses population in Jersey.

During the evidence-gathering process, there was a clear sense of a well-developed business community – with active and effective business organisations such as the Chamber of Commerce (the oldest in the English-speaking world), and a local branch of the Institute of Directors plus a range of sectoral bodies such as the Construction Council, Jersey Hospitality Association, Jersey Aquaculture Association, Jersey Farmer's Union and Jersey Finance which all contribute to a vibrant and visible business sector. Consultees suggested that Jersey society understands the value of business.

Further, the broad policy environment in Jersey is positive –in particular, a tax regime that is favourable to entrepreneurs, both in terms of the low level of taxation (low personal and corporate tax plus no capital gains or inheritance taxes) and the stability of the tax system. Many consultees pointed to the responsiveness and accessibility of government and a willingness to respond to the needs of businesses.

The small size of the Island means businesses can find networking opportunities easily. Consultees from the digital sector suggested that it was possible to develop a digital community quite quickly, with the Digital Jersey Hub a great asset in achieving this. In general, the support from Jersey Business and Digital Jersey was applauded.

[11] It was not possible to get data on the number of limited companies in 2012, under the old (Regulation of Undertakings) law so it was assumed that approximately 300 limited companies were started, which is 30 per cent of the total of approximately 1,000 new business starts.

However, during our consultations some were of the view that government in Jersey is not good at promoting enterprise or innovation; with many saying that government puts in place too many barriers which prevent businesses and entrepreneurs achieving their potential. This was reinforced by the survey with a number of respondents identifying government regulation and red tape as a barrier to innovation, though in many cases there was a lack of specific detail on which regulations were a particular barrier.

The 2014 Enterprise Action Plan (EAP) included an action to *"Undertake research to ascertain the areas of regulation, and specific regulations, which businesses see as a barrier to enterprise"*. Further, the EAP stated that the States would "*ensure that the costs and benefits of any proposed regulations are weighed up and that businesses have had an opportunity to consider any new regulations before they are introduced"*. It is not clear what progress has been made on either of these actions to date. Moreover, given positive experiences on better regulation in other jurisdictions, such as the UK and the Netherlands, Jersey should actively seek to remove and reform costly or burdensome regulations.

Recommendation 20: Government should consult with businesses to ascertain which regulations are viewed as the major barriers to enterprise and undertake to reform or remove these, subject to a cost/benefit analysis.

The lack of double tax agreements was also seen as a potential barrier to exporting. Some progress has been made in this regard in recent years, with approximately twenty full or partial double tax agreements in place with other jurisdictions. However, the absence of any unilateral relief (except in certain circumstances, at the discretion of the Treasury), was identified as a potential issue for businesses.

A consistent theme was that innovation in Jersey was held back by the conservative and risk averse business environment, resulting in a fear of failure. There was a common perception that government's risk aversion perpetuates the general culture of risk aversion – though others accepted that government would be naturally risk averse due to the need for accountability. A fear of failure was put down to a number of reasons – including the pressure of being in a small community and the dominance of a finance sector more focussed on safety than risk-taking. Some consultees suggested that there was no start-up culture in Jersey. Survey evidence suggested that Jersey firms were poor at adopting technology, performing significantly worse than any of the other comparators.

Culture is a very difficult thing to change, and change is only likely to take place if there are both positive policies and visible successes from innovation over a sustained period of time. Implementing the recommendations in this report should take Jersey a long way towards an environment where the rewards from innovation are greater than the perceived risks. In addition, Jersey should make sure successes are celebrated frequently and visibly.

Recommendation 21: Government should develop and implement a plan for publicising and celebrating innovative firms in Jersey, including an innovative firm award at the Jersey Enterprise Awards.

Survey results suggested that businesses felt there was a reasonable intensity of competition in local markets, similar to the level for the majority of the available comparators – though significantly lower than leading jurisdictions of the UK, Malta and Hong Kong. Interviewees gave a more nuanced picture, suggesting that some sectors were highly competitive but others were victims of inertia due a lack of competition and entry or exit.

Given the importance of competition to innovation and improving productivity, it is important that Jersey focusses on maintaining or enhancing the competitive landscape, including addressing barriers to entry and

effective regulation of regulated industries. The forthcoming competition review should help to achieve this through assessing Jersey's competition framework against best practice.

6.3. Starting a business can be slow and costly

As part of the review, an attempt was made to replicate some of the "*ease of starting a business*" calculation carried out by the World Bank as part of the Ease of Doing Business rankings. Based on this methodology, it was estimated to take approximately eighteen days to start a business. This was similar to the length of time reported in Luxemburg but longer than most of the comparators, with the exception of Malta where the estimate was 34.5 days.

Approximately half of the time was taken by waiting for a decision from the Population Office on whether to grant a business licence. But there is also a requirement to register with Social Security, the Tax Department and the Jersey Financial Services Commission. Under the e-government programme, the States of Jersey has launched a tell-us-once programme for registering a new business, so this may improve the total processing time somewhat. However, with half the time taken for the Population Office, there is clearly a limit to how much impact the tell-us-once programme can have.

While in some cases the length of time taken may be due to Jersey being more selective over the types of activity undertaken by firms, in order to protect the reputation of the financial services industry, this is not likely to be an issue for the majority of applications. Some inward investment firms who had recently located to Jersey said that the process of moving their firm to Jersey was very slow and extremely costly in terms of professional fees. Quite often this seemed to relate to tax advice, however, and there are likely to be incremental benefits to the firm from paying additional fees for this assistance.

Recommendation 22: Government should benchmark its performance for processing applications to start indigenous and inward investment businesses, and set targets for improvement.

There are also concerns among the business community that the cost of doing business in general could put some potential entrepreneurs off, or could hold back investment in innovation. The Economic Development Department are undertaking a number of studies on the cost of doing business in Jersey – starting with the recently published study on the cost of Access to Finance, and this is welcomed. However, this could be supplemented by Jersey seeking to be included on one of the many competitiveness indexes such as the World Bank Cost of Doing Business, or the World Economic Forum's Global Competitiveness Index.

Recommendation 23: Government should compare, and then act on, the costs and benefits of being included in one of the major global competitiveness comparisons versus undertaking further research locally to benchmark and improve Jersey's competitiveness.

6.4. Transport and communication links are good, but expensive

Jersey is well-served by air and sea connectivity. It is possible to fly directly to over forty destinations from Jersey Airport, with onward connections to a much wider range of destinations. While the comparators used for this review are likely to have many more destinations available, Jersey is much smaller and is well served by over ten flights per day to London airports opening up onward connectivity. There are also frequent passenger and cargo ferry services to the UK, France and Guernsey.

However, there are concerns regarding the cost of freight services, with interviewees suggesting it is only cost-effective to export niche products such as the Jersey Royal. This was echoed by survey respondents stating that it was not worth trying to export most products due to the cost of transport. Other firms had concerns regarding delays at Customs, slow local delivery or lack of postage options to mainland Europe.

For technology-reliant firms, the availability of data connectivity is more important. Consultations suggested that connectivity was good, though the length of time taken to implement the Gigabit Jersey Fibre installation was raised as a concern. Some consultees suggested that the fibre roll-out should have started with urban areas, in order to maximise the benefit to businesses early on. Data from comparators suggests that business broadband connectivity is closely correlated with residential broadband connectivity – with Iceland, Switzerland and the UK leading on both, ahead of Luxembourg, Estonia and Ireland. Based on the most recent comparable year, 69 per cent of households in Jersey had broadband connections in 2011 – putting Jersey broadly in the middle of the comparators available. Broadband penetration has increased since, with the Jersey Annual Social Survey showing this increased to 76 per cent in 2012 and to 89 per cent in 2014; though this will also have increased for the comparators.

However, the cost of off-island telecommunications connectivity was suggested as a barrier to innovation for firms requiring high-volume secure data connections. Given the likely sectors in which an island like Jersey could develop deeply competitive niche clusters – such as financial technology back office functions – ensuring low-cost connectivity is critical. This is something which was considered by the Jersey Competition and Regulatory Authority (JCRA) in their 2014 consultation on business connectivity. The report states:

> *"the JCRA expressed concern over the pricing of off-island connectivity, particularly of the higher capacity leased lines, and noted that this issue has been raised repeatedly by businesses in Jersey in the context of the retail market."*

However, the JCRA concluded that *"no operator is dominant in the provision of wholesale off-island leased lines in Jersey"* and there is no issue of capacity being constrained. If neither competition nor capacity is an issue, this suggests that the underlying structural position of the Island is inherently higher-cost and that the issue would need to be mitigated in other ways. In practice, this might require direct support to businesses dependent on high-volume connections in order to make their business model competitive on-island.

Other consultees were of the view that initiatives such as a municipal Wi-Fi network would help to promote business and entrepreneurship, with some suggesting that the lack of these facilities had led to entrepreneurs leaving the Island. However, with the recent launch of fourth generation mobile networks with the Island's three main providers, the need for this may be diminishing. Moreover, as long as commercial Wi-Fi access can be arranged at a reasonable cost, this is unlikely to be a major barrier.

Recommendation 24: Government should assess whether the cost of data connectivity is a barrier to enterprise and innovation, and whether there is any justification for providing targeted financial support to certain types of businesses to overcome this.

6.5. Conclusions

Jersey has a favourable business environment with low taxes and access to high quality infrastructure and connectivity. This has resulted in a vibrant and well-developed business community. There are, however, particular challenges facing innovative businesses. Real and perceived red tape hold back entrepreneurs, as do high costs of connectivity and a relatively risk-averse culture.

While some of these issues are inherent, and therefore difficult to address, the government should investigate and act decisively to identify and correct any market failures which result in high business costs. In addition, Jersey can encourage entrepreneurship and innovation by continuing visibly to communicate and celebrate the successes of Jersey businesses and their contribution to society.

Section 7 - Science and Innovation Policies: government's policies to enhance innovation

Indicator	Description	Jersey score	Leading comparator	Leading score
P1	**Strength of intellectual Property protection**	**4.4 / 7**	**Singapore**	**6.2**
P2	**Government procurement of innovative products**	**2.8 / 7**	**Singapore**	**5.1**
P3	**Tax incentives for innovation**	**Qualitative**		

Please see Annex G – Comparative analysis for further detail behind the indicator scoring

Overall rating: Strength | Neutral | **Weakness**

7.1. There are a wide range of policy instruments in place to encourage innovation in other jurisdictions

The OECD gathers and synthesises information about countries' policies for innovation in its Science, Technology and Industry Outlook publication. It makes a distinction between broad policies that support innovation in general – such as a favourable business environment and effective skills provision – and specific government policies directly aimed at catalysing innovation. The OECD's forthcoming Innovation Strategy (2015) states:

> *"Sound framework conditions, investment in skills and a strong system of knowledge creation and diffusion are important but often not enough to foster innovation. More specific innovation (and business) policies are often needed to tackle a range of barriers to innovation. This set of policies is wide-ranging and includes: tax incentives for investment in R&D; direct public support through grants, subsidies and innovation competitions; policies to facilitate cooperation and networking, but also indirect incentives through public procurement and other so-called demand-side policies that can help to strengthen markets for innovation, and help focus it on specific challenges and opportunities, e.g. green growth. Many of these actions include policies at the regional or local level, reflecting the growing role of local actors for innovation, and the importance of place-based policies. Moreover, well-informed, dynamic engaged and skills consumers are important for innovation, and their role in innovation can be enabled by specific consumer policies."*

As an example of specific innovation policies, the UK's innovation agency, Innovate UK runs a comprehensive set of programmes to provide innovative businesses with access to funding, financing, skill-building, networking, leading-edge knowledge and experts, and mentoring. As an illustration of a broad suite of innovation policy instruments, Table 4 below describes the main Innovate UK programmes and how they work.

Table 4 - Innovate UK Programmes

Catalysts	Grants of £150,000 to £10 million to run a research and development project. This funding can be used to test and develop an innovative idea and make it successful. The project can help to create new knowledge or develop a new product, process or service.
Collaborative research and development	Grants of £25,000 to £5 million or more to fund a research and development (R&D) programme. This funding can be used to test and develop a new product, process or service.
Eurostars	EU funding which can be used for research or to develop an innovative product, process or service. Applicants can find partners from other European countries to work with them on their project.
Feasibility studies	Grants of up to £400,000 to test a business idea and see if it will work. Organisations can use this funding to develop a new product, process, model, experience or service.
Horizon 2020	EU funding to: • achieve something that's too big to do alone • work with other organisations across a value chain • gain access to science and technology • draw on skills and expertise you don't have • find opportunities to trial innovative solutions
Innovation Vouchers	Grants of up to £5,000 from to pay for an external expert to help your business grow. This expert can develop or improve an innovative idea for a new product, process or service or show how to use design within a business or how to manage and use intellectual property.
Knowledge Transfer Partnerships (KTP)	Funding of around £80,000 to improve your business by working with a research organisation and newly-qualified graduate. This funding covers part of the cost of a graduate working in the company on a specific innovation project. The research partner will supervise the graduate's work.
Launchpads	Grants of up to £100,000 to turn an innovative idea into a commercial project. You can also get business support and coaching to attract private investment. Innovate UK runs Launchpad funding competitions to help technology-focused companies in specific geographic clusters.
Small Business Research Initiative (SBRI)	Contract to research and develop a new product or service for the public sector. Your innovative idea can help improve public services by solving a specific problem.
Smart	Grants of £25,000 to £250,000 to run an R&D project to develop a new product, process or service.

Source: Innovate UK

7.2. Jersey's low tax environment should act as a spur to innovation

Jersey does not have a system of tax allowances to specifically incentivise innovation, or research and development. This means that firms will have no specific incentive to invest in innovation unless the returns

are greater (or risk lower) than a similar investment which will not enhance innovation. However, given that Jersey businesses already pay little tax relative to other jurisdictions, it is not clear that an extra allowance for innovation would be effective. Moreover, it could compromise the current Strategic Plan objective of having a tax system which is "low, broad, fair and simple". The importance of simplicity and stability should not be underestimated for any investment decision.

Since the introduction of the 'zero/ten' corporate tax regime in 2008, the majority of firms outside the finance sector have not been required to pay tax on their profits. As noted in Section 6 - Business Environment: ease of and incentives for innovating, any factors which make for a hospitable business environment are also likely to encourage innovation. But beyond this, it is likely that low corporate tax would be a particular incentive for innovation, given that it would allow firms to capture a greater share of the often significant profits which can flow from investment in innovation.

Jersey's personal tax rates are also relatively low – with the top rate of income tax being an effective rate of 20 per cent, and with the majority paying a lower effective rate. Even when Class 1 Social Security contributions and the Long-Term Care charge are included, the highest marginal rate faced by taxpayers would be less than 35 per cent. While maximum marginal rates are difficult to compare between different tax and social security systems, this compares favourably with both the UK and Ireland – where marginal rates can exceed 50 per cent. The lack of capital gains tax or inheritance tax also acts as an incentive to innovate.

However, a number of stakeholders in Jersey have expressed concern that the low tax environment is only an incentive for established, profit-generating firms. Indeed, this is a general feature of tax incentives and shows their limitations. Low corporate, personal or capital gains taxes (or indeed R&D tax credits) are no substitute for seed funding – as covered in Section 3 - Money: investment in innovation. Having said that, most companies expect to generate a profit sometime in the future and low or zero corporate taxes enhance their net rates of return from investment in innovation.

7.3. There is a comprehensive system of protection of intellectual property rights, but there are perceived weaknesses

Survey respondents were asked to give their opinion on the strength of Jersey's *"protection of intellectual property, including anti-counterfeiting measures."* Jersey scored very poorly on this question, below any of the comparator jurisdictions other than Cyprus. On a global basis, this still places Jersey significantly above the average of the jurisdictions reported in the World Economic Forum's World Competitiveness Index, above some European jurisdictions such as Italy, Poland and Spain – but well behind the leading jurisdictions of Singapore and Finland.

These poor scores are likely to reflect the time it has taken to update Jersey's intellectual property legislation. The intellectual property system has been considerably updated in recent years to bring it into line with international conventions, but according to consultees, this has taken a lot longer than desirable. A new, modern law on unregistered property rights came into force in 2012 and an update to the registered rights law is due to be debated by the States Assembly over the coming months (States of Jersey, 2015b). This update is designed to make Jersey's system of intellectual property registration compliant with international treaties and conventions such as the Paris Convention, to allow Jersey to apply for membership of the World Trade Organisation (WTO).

However, given the results of the survey it is important that Jersey continues to keep intellectual property legislation fit for purpose and looks at ways to address any outstanding concerns from businesses.

Recommendation 25: Government should continue to engage with industry to identify any constraints to innovation resulting from the existing system of intellectual property protection and take measures to address any outstanding issues.

Further, concerns have been expressed that Jersey's system of a secondary registry[12] could be holding Jersey back in becoming a leader in attracting innovative firms. However, this was not supported in the consultations. Innovative firms interviewed did not view the secondary system of registration as a barrier for carrying out their innovative activities in Jersey. Registration and maintenance of intellectual property rights was generally seen as a 'necessary evil' that would be done in the most efficient way possible – though in any case registration outside of Jersey was generally more valuable for export-focussed companies than a local registration.

There could be opportunities for Jersey to introduce cutting-edge legislation for registration of IP and combine this with the existing predictable and stable judiciary to become a hub for the management of intellectual property assets. While somewhat outside the scope of encouraging innovation, this has been cited as a real opportunity for Jersey to exploit new business in adjacent markets to the existing finance and legal sector. It is likely that pursuing an ambitious strategy to establish an IP hub would require significant commitment, resource and skill and the aligned actions of a number of parties, not least to attract the new business to Jersey. The States needs to explore whether it is feasible to achieve this and undertake a full cost-benefit analysis, relative to an option where Jersey remains a "fast follower" in IP legislation.

Recommendation 26: Government should assess the value and feasibility of any potential opportunity to become a global hub for the management of intellectual property assets.

7.4. Government procurement does not appear to foster innovation

Results from the innovation survey suggested that local businesses did not feel government purchasing decisions foster innovation, with Jersey scoring worst among the available comparators on this measure. This was reflected in the consultations, which suggested that government procurement was too focussed on cost, rather than value. Consultees felt that lifecycle costs or service improvements should be reflected in purchasing decisions.

Recommendation 27: Government should review and, where appropriate, reform government procurement guidelines and practice to reduce bureaucracy, increase transparency, and reward innovation (i.e., value as opposed to just low cost), and publish statistics on government procurement by size and age of company.

7.5. Jersey does not have a comprehensive suite of policies specifically aimed at incentivising innovative activity

As stated in section 7.1, it is not just policies aimed directly at science and innovation which can have an impact. Wider policies aimed at promoting business or entrepreneurialism are important, but relevant policies can also be related to planning or education. The broader policies that create a favourable environment for innovation are covered in more detail in other sections of this report. Table 5 below shows the main innovation policy instruments in Jersey which were considered to either be directly targeted at encouraging innovation or are expected to have strong effects on innovation.

[12] Jersey's secondary registry system means that any intellectual property rights must be registered in the UK in the first instance, then a secondary registration made in Jersey to protect those rights locally.

Table 5 - Innovation policy instruments in Jersey

Policy instrument	Type of instrument[13]	Description
Education policies	Support to human resources for R&D	There is some support from Education Department, though this is not necessarily targeted at innovation. The Jersey Bursary supports postgraduate studies but there is no emphasis on innovation.
Digital Jersey education programme	Innovation-related skills education	Digital Learning Hub, Digital Jersey Coding Programme, Technovation Challenge, Business & Enterprise Vocational course, Be Very Afraid.
Barclays Programming	Innovation-related skills education	Schools coding programme.
White Collar Coding	Innovation-related skills education	Coding programme for businesses.
Skills Accelerator	Innovation-related skills education	Grants for employers to help with the cost of staff training. Not specifically innovation-related.
Private sector staff-training programmes	Innovation-related skills education	For example C5 Academy – a technical academy in Jersey and Guernsey designed to attract, nurture and retain emerging technical talent locally. Sure Academy – an apprenticeship scheme aimed at developing the telecommunications professionals of the future.
Locate Jersey / Jersey Finance	Innovation networks and platforms	Attracting innovative businesses to the Island.
JFSC	Innovation networks and platforms	Work with industry to scope out potential for innovation.
Durrell Conservation Academy	Centres of Excellence	Durrell Conservation Academy (wildlife conservation) is a world-class research institute with links to Imperial College.
Jersey Business innovation support	Direct business innovation support	Jersey Business is a grant-funded business advisory service. As part of both their high-growth agenda and their productivity-improvement agenda they provide advice and support to companies to innovate e.g. supporting companies who might choose to apply to the Jersey Innovation Fund.
Jersey Business start-up support	Support to start-ups	Jersey Business provides support and advice to all start-ups, though there is not a specific focus on innovative start-ups.
Digital Jersey start-up support	Support to start-ups	Digital Jersey provides support to digital start-ups, including networking events.
Digital Jersey Hub	Cluster programmes	Co-working space for digital sector.
Digital Jersey events	Awareness raising	A wide range of conferences, newsletters, seminars etc.
Gigabit Jersey	E-society	Fibre network to all properties (cost >£40m)
E-government programme	E-society	The eGovernment (eGov) programme aims to improve customer service and make the States of Jersey a more efficient business.
Innovation Fund	Financial instruments (loans / guarantees)	Loans for innovative projects, £5m budget. Three private sector projects supported in 2014 and a further four in the first half of 2015.
Low corporate and personal tax	Tax incentives	Most companies face 0% corporate tax (exception of finance, utilities, property development) Top rate of personal tax 20%

[13] See Annex C of European Commission (2013) for a full description of the types of instruments which were considered.

This demonstrates a number of initiatives from both the public and private sector in Jersey. A large number of the policy instruments have been introduced in recent years, and this is encouraging. However, not all these initiatives have yet been shown to be effective and there are a number of gaps. Table 6 below summarises the information above in a different format to provide an overview of the coverage of Jersey innovation policies, based on the European Commission's analysis of the different types of innovation policy instruments (European Commission, 2013).

Table 6 - Coverage of Jersey innovation policy

Focus of policy	Policy instrument	Jersey policy position
Skills for innovation	Graduate and PhD training	(✔)
	Innovation-related skills	✔
	Entrepreneurship training	(✔)
Investment in research, technology and commercialisation	Research funding	✖
	Business R&D support	✖
	R&D infrastructure	✖
	Centres of Excellence	✖
Firms' innovation competencies (incl. start-up support)	Business innovation support	✔
	Start-up support	✔
	Innovation networks and platforms	✔
	Innovation support services	✔
	Incubators	✔
Innovation system linkages	Collaborative R&D programmes	✖
	Cluster programmes	✔
	Academia/business exchange	✖
	Technology transfer	✖
	Competence centres	✔
	Spin off support programmes	✖
	Science and technology parks	✖
Demand for innovation and framework conditions	Awareness raising	✔
	E-society	✔
	Intellectual Property Rights	✔✔✔
	Financial support	✔
	Support to venture capital	✔ (low taxes)
	Public procurement	✖
	Tax incentives	✔✔✔ (but generic)

This shows that Jersey has particular gaps in encouraging investment in research and new technologies and limited support for innovation system linkages. While the Innovation Fund has provided investment which will be used for development activities, the principal focus of the funding is generally not related to further research. While Jersey's industrial structure does not rely significantly on scientific research, there could be some benefit to Jersey exploring whether there is a cost effective way to test demand for support for Jersey firms undertaking research, rather than develop all the infrastructure and support mechanisms listed above which may not be appropriate or necessary.

There are a number of "starter" programmes offered in the UK which can help SMEs to access resources to undertake research. Box 1 outlines two of these programmes which may be of relevance to Jersey – the Knowledge Transfer Partnership Programme and the Innovation Voucher programme. Both these programmes offer funding for firms to utilise resources within knowledge bases in the UK and are designed primarily for

firms who have not previously used such resources. While both programmes are publically-funded under the aegis of Innovate UK, there are versions of the schemes funded by the Scottish and Northern Irish regional governments, with Innovate UK support.

While there is currently no evidence of substantial demand for this type of support, it could be a relatively risk-free approach if Innovate UK were asked to open the programmes to Jersey companies, on the assumption that Jersey would fund the subsidy and any administrative costs associated with applications from Jersey companies – and be responsible for promotional activities through Digital Jersey and Jersey Business.

Recommendation 28: Government should develop a programme to encourage firms to engage in knowledge transfer, for example investigate the feasibility of Jersey firms being able to apply to UK programmes such as Knowledge Transfer Partnerships and Innovation Vouchers.

Box 2 – Examples of UK programmes supporting collaborative research

Innovation Vouchers – Innovation Vouchers help SMEs access knowledge from external providers such as universities and colleges, research and technology organisations, design advisers and intellectual property advisers. The new national Innovation Voucher scheme was launched in September 2012 and helps to stimulate businesses to bring in new knowledge, enhancing their ability to develop innovative products and services.

The programme offers a contribution of up to £5,000 to pay for expert advice.

Knowledge Transfer Partnerships – Knowledge Transfer Partnerships (KTPs) aim to help improve the competitiveness of a business by drawing on the expertise in UK universities, colleges and other knowledge providers. Knowledge is usually transferred through a recently qualified individual specifically employed to work on a challenging innovation project.

The programme offers funding of up to £80k, including part-funding of a graduate to work in the business, under the supervision of an accredited research organisation.

Source: Innovate UK

The above programmes, which tend to be focussed on smaller-scale initiatives and firms who may be new to collaboration, may lead to opportunities for more sophisticated research activities. In the UK, these are supported by other Innovate UK programmes, such as collaborative R&D, SMART grants and Catapult Centres. Jersey companies may need further support for this follow-on work and this could either be provided by the Innovation Fund or by considering whether access to further UK-based programmes could be justified. In the first instance, access to the starter programmes could serve to test demand for research funding and pump prime demand for further support.

There are also a number of ways in which innovation system linkages could be built locally. During consultations, there were a variety of ideas around incubator space, ranging from an Accelerator-type programme with wraparound support based on shared office facilities, to a creative hub with provision of equipment such as 3D printers and laser cutters. While Digital Jersey has a proposed incubator space and already offers the Digital Jersey Hub to support the digital sector, there are privately-funded proposals for further incubator-like spaces to be developed – particularly for the creative sector. Government should ensure it is aware of and supportive of these proposals and should ensure there are no impediments to their development, for example planning constraints.

Recommendation 29: Government should continue to actively support, and remove barriers from, the development of any privately-funded incubator or shared creative space.

There is a further gap in relation to policy instruments to promote entrepreneurial skills. It is understood that Highlands College is currently developing a programme which will offer this training to their students. The Business Education Partnership discussed in Section 4 - Talent: human capital to deliver innovation may result in further development of this within schools. Digital Jersey's Business Plan also aims to develop a 'Jersey Sirius programme' which will be based on the UK Trade and Investment programme aimed at international graduates who want to start and grow a business in the UK. Digital Jersey may wish to consider whether indigenous entrepreneurs might also benefit from support through the proposed programme.,

Recommendation 30: Government should map the entrepreneurship training available on-island, including consultations with entrepreneurs to identify and aim to fill any gaps in partnership with the education and private sectors, and ensure the information is easily available to innovators.

7.6. Conclusions

Jersey has relatively few policies aimed directly at catalysing innovation. There are specific gaps relating to encouraging research and development and intensifying collaborations in the innovation system. This starting point is not necessarily a weakness: by realigning, strengthening and potentially extending existing initiatives, it is possible for Jersey to avoid the over-complex policy landscape that many others suffer from.

Bodies such as Jersey Business, Digital Jersey, Locate Jersey and Jersey Finance should be explicitly tasked with helping businesses navigate and connect to the innovation landscape, including in the UK. The States should keep the scope and scale of the Innovation Fund under review (as per Recommendations 1 and 2) and aim to complement it by gaining access for Jersey firms into relevant Innovate UK schemes. The States should also review procurement policy and practice to ensure it encourages innovation.

Finally, the States should support the many private initiatives that support a healthy innovation ecosystem on the Island, including training for entrepreneurship and development of incubators and shared creative space.

Section 8 - INNOVATION OUTPUTS: IMPACT OF INNOVATION ON THE ECONOMY

Indicator	Description	Jersey score	Leading comparator	Leading score
O1	% of firms engaging in product innovation	69%	Jersey (Luxembourg)	(30%)
O2	% of firms engaging in process innovation	47%	Jersey (Luxembourg)	(33%)
O3	Sale of new products as % of turnover	7%	Switzerland	16%
O4	% of SMEs engaging in export	50%	Jersey (Estonia)	(22%)
O5	High-growth firms	3%	Estonia	6%
O6	% of SMEs that have an ambition to grow	93%	Jersey (UK)	(73%)

Please see Annex G – Comparative analysis for further detail behind the indicator scoring

Overall rating: Strength | Neutral | Weakness

8.1. A large proportion of Jersey firms are innovators

Data from the Innovation Survey suggested that a majority of firms in Jersey had engaged in innovative activities over the period 2012-2014. At 69 percent, the proportion of firms engaged in product innovation (i.e. new goods or services) was significantly higher than for any of the EU comparators – more than double the next highest of Luxembourg. There are some differences in the way the data were collected[14] in Jersey but this should not distract from the fact that a large proportion of firms in Jersey state that they have introduced new products over the last three years.

When asked about process innovation, the proportions for Jersey were much lower – with 47 per cent undertaking this type of innovation over the last three years. However, this still compares favourably with most of the comparators, again significantly ahead of the next highest of Luxembourg. This is subject to the same caveats as the product innovation indicator, in terms of the different way the data were collected.

Survey respondents indicated that only 7 per cent of revenues came from products which were new or significantly improved, lower than all but one comparator (Iceland). While this may be slightly distorted by differences in the way the question was asked[15], it does suggest something of a disconnect, as firms state that they engage in innovation but this appears to be having a limited impact on their revenues.

[14] The question in Jersey was a multiple choice question, rather than yes/no as in the European Commission survey – which may mean the Jersey proportion would be an overestimate. Further, the data are based on "innovation active" sectors as defined by the European Commission (see footnote 6 in Section 3 - Money), the majority of employment in these sectors is in financial services.

[15] For simplicity, the Jersey survey used quite wide bands for respondents to indicate the proportion of revenue from new or significantly improved products. The survey used by comparators (the Community Innovation Survey) asked for the specific percentage.

During interviews, the majority of stakeholders claimed that their own business was innovative but few thought that Jersey had an innovative culture or that firms were in general innovative. There was a key theme that Jersey had previously been innovative and tried to stay ahead of the game but that this was less the case now as the business sector in Jersey became more concerned with protecting existing wealth rather than creating new wealth.

8.2. Jersey firms are exporting and have ambitions to grow

Firms with genuinely innovative products are much more likely to be engaged in exports and more likely to see their firms grow. Research by the Enterprise Research Centre (2013) found:

> *"SMEs which have a track record of innovation are more likely to export, more likely to export successfully, and more likely to generate growth from exporting than non-innovating firms. "*

Survey analysis showed that, weighted by employment, half of Jersey businesses are exporters, with 93 per cent of finance firms and 34 per cent of non-finance firms reporting that they sold goods outside Jersey over 2012-2014. 50 per cent of SMEs reported exporting. The most export-orientated sector was computer & related activities, where 100 per cent of firms reported selling outside Jersey – contrasting somewhat with reports from stakeholder interviews which suggested that many local IT-firms were inwardly focussed.

Jersey SMEs are much more likely to be engaged in exports than their counterparts in the UK where only 20 per cent of SMEs were exporting. Even where exports to the UK or other Channel Islands are excluded then Jersey still outperforms the UK, with 37 per cent of SMEs selling to the rest of Europe or the world. Jersey also fared better than the UK when looking at the proportion of firms who have ambitions to grow over the next three years, with 92 per cent of Jersey SMEs looking to grow compared to 73 per cent in the UK. When large companies (employing over 250) are included, 94 per cent of Jersey firms have ambitions to grow.

Recent data on either of these indicators are difficult to find for the other comparators but data from 2005 suggest that the proportion of SMEs who export in the UK (9 per cent) was lower than Estonia (22 per cent), Iceland (16 per cent) and Ireland (11 per cent) but higher than Cyprus (3 per cent) and Malta (6 per cent) and similar to the proportion in Luxembourg (European Commission, 2007). While these proportions are likely to have changed significantly over the last ten years, Jersey's significant lead over the UK on this indicator means that the Island is likely to compare well with the other comparators.

8.3. However, this is not translating into growth

The importance of high-growth firms has thrust them to the top of the economic development agenda around the world in recent years. Research by NESTA (the National Endowment for Science, Technology and the Arts) indicates that during 2002-2008, half of the new jobs created by existing businesses in the UK were created by 6 per cent of businesses (NESTA, 2009b). Subsequent research has shown that these firms also proved to be more resilient during the subsequent recession in the UK (NESTA, 2011) and have been shown to be more productive, with research in the United States finding that "*Across all industries, employee-size segments, and periods of analysis, high impact companies generate more revenue with the same share of human capital inputs than all other companies*" (SBA, 2011).

Coutu (2014) states that high-growth firms must be, by definition, innovative firms – if they are able to sell significantly more of their product to customers each year. Research by NESTA indicated that employment grew twice as fast in those firms which had previously undertaken innovation, when compared to those companies who had not (NESTA, 2009c). However, in spite of having a large number of innovative firms, Jersey has a very small number of high-growth firms. Jersey's Manpower Survey shows that only 3 per cent of firms in Jersey have demonstrated that they are high-growth. This compares to 6 per cent for Estonia and the UK and is

the lowest of the available comparators, though there are some small differences in the definitions used which may mean that the Jersey figure is somewhat under-estimated[16].

High-growth firms are a priority for Jersey, with the 2014-2015 Enterprise Action Plan stating that *"specific support should be aimed at creating and developing firms with high growth potential engaging in high value added activity"* (States of Jersey, 2014). It should be noted, however, that any support provided during 2014 or 2015 will have been too early to impact on the number of high-growth firms in the December 2014 Manpower Survey, as the survey relates to growth over 2011-2014.

More recent research suggests that the focus on innovative growth firms needs to be carefully targeted. BIS (2014c) found that growth in innovative firms typically starts with increased employment, leading to investment in R&D, then new products which lead to increased sales. This research did not find any feedback loop from increased sales to further increased employment, leading BIS to conclude that the most effective policies take into account the development phase of the company and sequence support to ensure sufficient upfront investment in people and skills, and then technology and innovation in new products, before focusing on expanding sales. More widely, Autio & Rannikko (2015) found evidence to support the effectiveness of policy initiatives to support high-growth firms.

Jersey's forthcoming Enterprise Strategy should continue to focus on high-growth firms but reflect this latest research. It should include specific initiatives designed to increase the number of high-growth firms – such as access to incubators, a fast-track process to recruit migrant labour and support to obtain finance. However, it is important that this be carefully integrated and coordinated with other innovation policy initiatives.

Recommendation 31: The Enterprise Strategy should develop a range of actions specifically designed to identify and support potential high growth firms. The progress of these potential high-growth firms should be tracked, in addition to monitoring the number of high-growth firms in the economy.

8.4. Conclusion

The Jersey Innovation Survey results portray a dynamic picture of Jersey's business population, with high proportions of firms aspiring to grow, and engaging in innovation and exporting. However, qualitative and quantitative data from other sources suggest that this is not effectively translating into growth as Jersey firms' overall growth performance is poor.

Part of this short-fall in growth performance is likely to be due to the recent poor economic climate. However, an additional explanation for this discrepancy is that while the growth and innovation *potential* in the Jersey economy is high, the factors highlighted in previous sections are preventing this potential from being fully realised.

There is therefore no room for complacency. Jersey must use the findings of this report and subsequent consultations to develop a determined action plan to address the shortcomings in its innovation system.

[16] Comparator data is based on the OECD definition which looks at firms who increase employment or turnover by at least 20 per cent per year on average for three years, and who have more than ten employees at the start of the period. The Jersey definition is somewhat different and involves the proportion of firms with more than ten employees who doubled employment over four years (equivalent to averaging 20 per cent growth over four years).

Recommendation 32: Government should develop and start implementing an action plan based on the recommendations in this report, with clear deliverables, responsibilities, target dates and other targets, endorsed by all key stakeholders and published by end of 2015. This should involve ongoing monitoring of performance, with annual reports with some of the key indicators used in this review.

Section 2.1 illustrates the importance of innovation to the productivity and section 2.2 outlines government's important role in the innovation system. In Jersey, government has taken some steps to be supportive of innovation but is not currently organised in a way which can drive innovation forward through implementing the recommendations of this report.

Recommendation 33: Appropriate structures and resources need to be in place within central government which can drive forward innovation policy and implement the action plan required to address the issues raised in this review.

Section 9 - CONCLUSIONS

9.1. Summary of main findings

Element	Overall Assessment	Key strengths	Key weaknesses
Money	**Strength**	• Funding opportunities available locally • Access to funding from UK • Significant number of firms investing in R&D • Significant investment in intangible assets	• Limited funding for early-stage ideas • Lack of clearly-identified funding pathway • Low level of direct government funding for innovation (but low tax)
Talent	**Weakness**	• Well-educated population • Migration provides an opportunity to import talent	• Businesses find it difficult to source skilled people • There is room for improvement in leadership and management skills • Restrictions on migrant labour are a barrier to innovation
Knowledge	**Weakness**	• Access to knowledge bases in UK • Access to collaborative opportunities internationally	• Limited local knowledge bases • Opportunities for collaboration or knowledge transfer are ad-hoc • Few well-developed clusters
Business environment	**Mixed**	• Vibrant business community • Strong legal framework • Good transport links and connectivity • Network of effective government support agencies • Expertise in professional services	• Risk averse culture • Transport and communication costs expensive • Businesses slow to adopt technology • Starting a business not streamlined
Science and innovation policies	**Weakness**	• Low tax environment supportive of innovation • Comprehensive system of intellectual property rights • Current policy landscape not over-crowded or complex	• No policies to support collaborative research • Limited awareness of support available from agencies • Perception of poor intellectual property protection • Government procurement is not seen to foster innovation
Innovation outputs	**Mixed**	• Large proportion of firms engaging in innovative activities • Firms have ambitions to grow • Significant number of SMEs are exporters	• Innovation does not contribute significantly to revenues • Limited number of high-growth firms • No productivity growth in either finance or non-finance sectors

Jersey has the fundamentals required for a highly successful innovation economy: a stable, business-friendly, low-tax environment, access to sources of finance, highly educated population, a vibrant business community, proximity to some of the world's best universities and strong connectivity to large and sophisticated markets. However, there are worrying signs that these positives are not turning into sales, profits, jobs and growth on

the ground. This report has identified a number of areas where Jersey's innovation system requires improvement if the economy is to realise its innovation potential. The detailed recommendations are listed below, but they can be summarised under three main themes:

- *Take decisive action to reduce the actual and perceived costs of regulation to a minimum:* Jersey should aspire to be one of the easiest places in the world to set up, run and grow a business. This means rethinking migration and regulation, for example planning policy, radically streamlining application processes, benchmarking the government's performance and setting ambitious targets for improvement. It also means building Jersey's brand as a business-friendly jurisdiction, consistently communicating an openness to welcome new people, businesses and ideas and celebrating successful innovations.
- *Realign, strengthen and extend existing innovation initiatives:* The activities and communications of Jersey Business, Digital Jersey, Locate Jersey, Jersey Financial Services Commission, Jersey Finance and the Innovation Fund should be explicitly co-ordinated, with a clear mapping of the journey for innovative businesses regardless of their first point of contact. This should include specific actions to increase the quantity and quality of innovative and investible ideas in Jersey. Subject to future evaluations, the Innovation Fund's scale and scope should be reviewed to ensure it is appropriate to provide support at all relevant stages of development of an innovative idea, including considering whether some changes need to be made to make the funding more suitable for earlier stage ideas.
- *Facilitate international collaboration in knowledge and talent exchange*: To complement its local innovation activities, Jersey should tap into initiatives that its businesses could benefit from in the UK and elsewhere, such as Silicon Valley. In some cases, this may mean gaining access (at cost) into innovation programmes run by Innovate UK; in others, building links with targeted private and public sector research initiatives, networks and collaborations.

The States' commitment to the development of an innovation strategy is a great opportunity for Jersey to take pragmatic action to enhance innovation outcomes on the Island. By turning the findings and recommendations in this report and further consultations into a clear action plan, driving implementation, measuring progress and adjusting the plan over time, Jersey will be able to realise the full innovation potential of its economy.

9.2. Summary of recommendations

Money

Recommendation 1: Government should ensure the operation of the Innovation Fund is appropriate to provide support at all relevant stages of development of an innovative idea, including considering whether some changes need to be made to make the funding more suitable for earlier stage ideas.

Recommendation 2: Government should evaluate the effectiveness of the Innovation Fund after two years of operation, reviewing, and if appropriate changing, its size, scope and type of funding (e.g., loans, grants or equity investments).

Recommendation 3: Government should work with delivery partners (Jersey Business and Digital Jersey) to clearly depict and sign-post the range of funding and finance available for innovative firms in Jersey.

Recommendation 4: Jersey Business should measure the level of awareness of its services, including those supporting businesses in funding, financing and delivering innovation and growth, and set targets to improve awareness and grow its client base where appropriate.

Recommendation 5: Government should ensure that ongoing monitoring of recipients of support from the Innovation Fund is supplemented by ongoing support and aftercare. This should also be extended to firms who have obtained finance elsewhere.

Recommendation 6: Government should work with the Jersey Financial Services Commission to identify any specific types of funding vehicles which are not possible in Jersey and identify whether this restricts the availability of finance for innovative firms.

Talent

Recommendation 7: Education and skills policy needs to be set within the context of the States' economic objectives and in consultation with industry. The Education Department should work with businesses to create and implement an action plan to raise standards and align the curriculum with future skills requirements of innovative businesses, including problem solving, design, STEM subjects and entrepreneurship.

Recommendation 8: Government and delivery partners should clearly describe and promote the business support, including skills development, available to entrepreneurs from government and private sector sources. This should include measuring and setting targets to improve awareness of the support available.

Recommendation 9: Government should evaluate the performance of the Skills Accelerator programme and ensure that funding continues to be available where required – through either continuing the Skills Accelerator or offering further support to ensure lack of funding does not prevent employers from making appropriate investments to develop the skills of their employees.

Recommendation 10: The Education Department should identify who is responsible for developing a plan to address the shortfalls in leadership and management skill identified in the research commissioned by Skills Jersey.

Recommendation 11: Government should develop a mechanism to encourage firms to bring some digital and technological expertise in at board level, for example Digital Jersey sourcing a non-executive director plus part-funding for the initial twelve months.

Recommendation 12: Government should ensure that migration is targeted at those opportunities that have the most potential to contribute to an innovative and productive business base, for example by prioritising

posts which will bring entrepreneurial skills, STEM subjects or the development of the leadership and management capabilities of the workforce.

Recommendation 13: Government should make licences to employ migrant labour freely available for key posts in certain sectors or for specific skills, on a pilot basis to be reviewed after twelve months.

Recommendation 14: The Population Office should publish annual high-level statistics for average time taken to process applications for licensed/registered staff and set ambitious targets for improvement where appropriate.

Knowledge

Recommendation 15: Government and delivery partners should continue to work together to capitalise on opportunities to raise and promote Jersey's image as open for business and as a location of choice for entrepreneurs.

Recommendation 16: Government should aim to develop targeted linkages and relationships with knowledge bases (e.g. Russell Group universities, Research Councils, Innovate UK) in key target areas as can be identified in consultations with industry, such as digital, finance and professional services; and integrate these into support provided by delivery partners.

Recommendation 17: Government should develop support mechanisms for local businesses to collaborate, for example by exploring whether Jersey firms could take advantage of UK research and innovation collaboration programmes, such as the Digital Catapult Centre or Knowledge Transfer Networks.

Recommendation 18: Government should nominate an individual or body to explore opportunities to promote the Island as an opportunity to test innovations in specific areas where Jersey regulations and environment can provide a unique advantage.

Recommendation 19: Digital Jersey should continue to work towards the development of a digital cluster, but there needs to be a more clearly defined vision of what this cluster should look like and what actions and resources are necessary – agreed and tracked by government and industry.

Business environment

Recommendation 20: Government should consult with businesses to ascertain which regulations are viewed as the major barriers to enterprise and undertake to reform or remove these, subject to a cost/benefit analysis.

Recommendation 21: Government should develop and implement a plan for publicising and celebrating innovative firms in Jersey, including an innovative firm award at the Jersey Enterprise Awards.

Recommendation 22: Government should benchmark its performance for processing applications to start indigenous and inward investment businesses, and set targets for improvement.

Recommendation 23: Government should compare, and then act on, the costs and benefits of being included in one of the major global competitiveness comparisons versus undertaking further research locally to benchmark and improve Jersey's competitiveness.

Recommendation 24: Government should assess whether the cost of data connectivity is a barrier to enterprise and innovation, and whether there is any justification for providing targeted financial support to certain types of businesses to overcome this.

Science and innovation policies

Recommendation 25: Government should continue to engage with industry to identify any constraints to innovation resulting from the existing system of intellectual property protection and take measures to address any outstanding issues.

Recommendation 26: Government should assess the value and feasibility of any potential opportunity to become a global hub for the management of intellectual property assets.

Recommendation 27: Government should review and, where appropriate, reform government procurement guidelines and practice to reduce bureaucracy, increase transparency, and reward innovation (i.e., value as opposed to just low cost), and publish statistics on government procurement by size and age of company.

Recommendation 28: Government should develop a programme to encourage firms to engage in knowledge transfer, for example investigate the feasibility of Jersey firms being able to apply to UK programmes such as Knowledge Transfer Partnerships and Innovation Vouchers.

Recommendation 29: Government should continue to actively support, and remove barriers from, the development of any privately-funded incubator or shared creative space.

Recommendation 30: Government should map the entrepreneurship training available on-island, including consultations with entrepreneurs to identify and aim to fill any gaps in partnership with the education and private sectors, and ensure the information is easily available to innovators.

Recommendation 31: The Enterprise Strategy should develop a range of actions specifically designed to identify and support potential high growth firms. The progress of these potential high-growth firms should be tracked, in addition to monitoring the number of high-growth firms in the economy.

Innovation outputs

Recommendation 32: Government should develop and start implementing an action plan based on the recommendations in this report, with clear deliverables, responsibilities, target dates and other targets, endorsed by all key stakeholders and published by end of 2015. This should involve ongoing monitoring of performance, with annual reports with some of the key indicators used in this review.

Recommendation 33: Appropriate structures and resources need to be in place within central government which can drive forward innovation policy and implement the action plan required to address the issues raised in this review.

ANNEX A - TERMS OF REFERENCE

Purpose

Facilitating increased innovation, enterprise and inward investment is a key element of the draft 2015-2018 Strategic Plan priority to maximise economic growth. To achieve this, the Council of Ministers have agreed that a key area of focus will be the development of a new innovation strategy to build on the success of the Innovation Fund. To inform this strategy, the States of Jersey wishes to undertake a review of Jersey's current innovation strengths and weaknesses and options for enhancing its current innovation policy mix.

The purpose of this review has been specified as:

"What priority interventions should the States of Jersey put in place to accelerate innovation, and hence productivity growth, in the medium- to long-term?"

Scope

- Focus on innovation but identify and flag up linkages to other policies.
- Focus on the private sector, but outline where actions might also impact on the public sector.
- Cover a broad set of potential interventions, to avoid missing opportunities. This means that education, tax, migration etc. all in-scope.
- Set within the context of existing strategies and policies.
- A range of medium-term and longer-term actions, accepting that some of the longer-term actions may require more work before being implemented.

Key questions

In order to formulate a focused and effective innovation strategy for the States of Jersey, the following questions need addressing:

- In general terms, what are the fundamental inputs and drivers of innovation, both in terms of sector characteristics and government policies?
- How does Jersey perform on these inputs and drivers relative to other similar countries (including some analysis at sectoral level)?
- In areas where Jersey underperforms, what are the main barriers to greater innovation (again, ideally at least partly at sectoral level)?
- What are the interventions that should be considered for improving innovation performance and what is the current Jersey policy on each of these?
- Given areas of underperformance, main barriers and options for government intervention, and Jersey's existing policies, what are the priority actions Jersey should pursue?

Approach

Drivers

An initial review of the drivers of innovation evidenced elsewhere; identifying which of these will apply to Jersey. This should include both characteristics of the Jersey business environment and innovation system and an overview of existing policies that impact Jersey's innovation performance.

Jersey performance

Based on the drivers identified as important to Jersey, an assessment will be made of where Jersey stands in comparison to other comparators (to be agreed but may include e.g. Switzerland, Luxembourg, Ireland, Iceland and a UK comparator).

This will include four steps:

1. Desktop review of the available information for Jersey on the identified drivers. This should include a list of quantitative benchmarks, to be analysed through survey and existing statistics, as well as key qualitative drivers to be explored through interviews. It should also include a comparison of key Jersey policies vis-à-vis comparator countries.

2. Survey to collect any further information.

3. Interviews with businesses, stakeholders, government agencies. To include:
    - Jersey Business
    - Digital Jersey
    - Chamber of Commerce
    - Institute of Directors
    - Finance sector
    - Retail sector
    - Construction sector
    - Tourism sector
    - Other sectors as agreed
    - Additional companies that emerge from stakeholder/agency discussions

4. Quantitative benchmarking against comparators agreed previously. Case studies to include these comparators plus other small jurisdictions with limited quantitative data but from which qualitative insights would be valuable.

Barriers / market failures

Drawing conclusions on the main barriers based on the analysis from the interviews as well as data available. This may well go broader than areas traditionally linked directly to innovation.

Actions

Recommendations (high-level where necessary) to address the barriers and market failures identified. Approximation of cost (high, medium, low, no cost), impact and speed of implementation where possible.

Timeline

Completion in June 2015.

Governance

The review will be led by Tera Allas - former Director General, Strategic Advice, at the UK Department for Business, Innovation and Skills (BIS). Support will be provided by the States Economics Unit.

ANNEX B – JERSEY INNOVATION SURVEY

Jersey Innovation Survey 2015

This survey has been issued to collect information on innovation in Jersey, as part of a government-commissioned review of innovation. The responses to this survey will help inform States policy on supporting innovation. All responses will be treated in confidence. Your response will be valuable whether or not you carry out innovation activities.

More information about the review, including the Terms of Reference, is available at www.gov.je/InnovationReview where the survey can also be downloaded to complete electronically.

Please return this survey either by using the enclosed freepost envelope or by e-mail, by 29 May 2015.

SECTION 1: YOUR COMPANY

Please answer the following questions as accurately as possible, regarding your company's Jersey business operations. Where precise figures cannot be provided, please give your best estimates.

1. Over the period 2012-2014, into which geographic markets did your business sell goods and/or services? (tick all that apply)

1☐ Sell within Jersey 2☐ Export to UK or other Channel Islands 3☐ Export to Europe 4☐ Export to rest of the world

2. Do you intend to grow your business over the next three years?

1☐ Yes 2☐ No

3. Please estimate your company's expenditure on ICT (computer software, IT equipment, communication equipment) in 2014, as a proportion of your company's turnover.

Turnover, also called revenue, total sales and work done, consists of total takings or invoiced sales and receipts of the business in connection with the sale of goods and services.

1☐ None 2☐ 1 to 5% 3☐ 5 to 10% 4☐ 10% or more 5☐ Don't know

4. During 2012-2014, did your business introduce any of the following? (tick all that apply)

1☐ New or significantly improved goods 2☐ New or significantly improved services 3☐ New or significantly improved processes for supplying goods or services

5. Approximately what proportion of the turnover of your business in 2014 came from goods and services which were either new to market or new to your business, or were significantly improved products or services?

1☐ None 2☐ 1 to 10% 3☐ 10 to 25% 4☐ 25% or more 5☐ Don't know

6. Over the period 2012-2014, did your business invest in internal Research and Development?

Internal Research and Development is defined as any creative work undertaken within your business that increases knowledge for developing new and improved goods or services and processes.

1☐ Yes 2☐ No

7. Please detail any factors that have held back innovation in your company, such as adequate existing products and services, lack of demand for innovation, dominant market share held by competitors, lack of access to the right people with the right skills, lack of access to finance, barriers to exporting, regulatory restrictions, etc.

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SECTION 2: YOUR OPINION OF JERSEY'S BUSINESS ENVIRONMENT

Please answer the following questions on a scale of 1 to 7:

8. How well does the education system in Jersey meet the needs of a competitive economy?

1☐ 1 2☐ 2 3☐ 3 4☐ 4 5☐ 5 6☐ 6 7☐ 7

1= not at all well *7 = extremely well*

9. In your opinion, does Jersey retain talented people and attract talented people from elsewhere?

1☐ 1 2☐ 2 3☐ 3 4☐ 4 5☐ 5 6☐ 6 7☐ 7

1= not at all 7 = attracts and retains the best and brightest

10. To what extent do States of Jersey purchasing decisions foster innovation?

1☐ 1 2☐ 2 3☐ 3 4☐ 4 5☐ 5 6☐ 6 7☐ 7

1= not at all *7 = to a great extent*

11. To what extent do businesses in Jersey adopt new technology?

1☐ 1 2☐ 2 3☐ 3 4☐ 4 5☐ 5 6☐ 6 7☐ 7

1= not at all *7 = adopt extensively*

12. In Jersey, how intense is competition in the local markets?

1☐ 1 2☐ 2 3☐ 3 4☐ 4 5☐ 5 6☐ 6 7☐ 7

1= not intense at all *7 = extremely intense*

13. In Jersey, how strong is the protection of intellectual property, including anti-counterfeiting measures?

1☐ 1 2☐ 2 3☐ 3 4☐ 4 5☐ 5 6☐ 6 7☐ 7

1= extremely weak *7 = extremely strong*

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS SURVEY.

The Review team may wish to follow up with you to discuss your responses to this survey. If you do not wish to be contacted, please tick this box ☐

ANNEX C – SURVEY ANALYSIS

To support the analysis, a survey was issued to a sample of 539 firms in Jersey. Full or partial responses were received from 289 firms, representing a 53 per cent response rate. Firms with less than two employees were excluded to avoid putting a burden on sole traders. Public sector bodies and charities were also excluded, where possible.

The survey was sent to randomly-selected businesses, stratified by industry sector and headcount (as per the December 2014 Manpower Survey) in order to achieve a random sample. The 289 firms who responded covered over one third of private sector employment. Table 7 provides a more detailed analysis of the respondents by sector.

Table 7 - High-level analysis of response rate

	Respondents		% of sample		% of all firms[17]	
	Companies	Headcount	Companies	Headcount	Companies	Headcount
Agriculture & fishing	7	410	35%	73%	5%	31%
Manufacturing	13	403	81%	94%	12%	42%
Electricity, gas & water supply	2	408	67%	83%	67%	83%
Construction & quarrying	51	1,427	59%	74%	9%	32%
Wholesale & retail trades	52	2,606	59%	56%	9%	34%
Hotels, restaurants & bars	25	1,352	42%	46%	7%	27%
Transport, storage & communication	9	1,246	43%	69%	9%	52%
Financial and legal activities	53	5,887	55%	56%	17%	47%
Computer and related activities	6	245	60%	96%	9%	43%
Real estate & other business activities	29	1,392	50%	64%	7%	34%
Education, health & other services	42	1,296	52%	60%	9%	28%
Total	**289**	**16,672**	**54%**	**60%**	**9%**	**38%**

As the survey is a voluntary sample survey, the responses were weighted to make the responses more representative of the private sector economy. Firstly, the response to each question was weighted by employment on a full-time equivalent (FTE) basis, to provide an employment-weighted response for each sector. Secondly, each sector was then weighted according to its share of private sector employment (for firms with at least two employees), on an FTE basis. The detailed analysis in this annex provides both the unweighted and weighted responses by sector and the overall unweighted and weighted responses to each question. The comparative analysis (see Annex G – Comparative analysis) was carried out on the basis of the weighted response to each question.

For some of the questions, the responses were compared to responses to the European Union Community Innovation Survey (CIS) which was undertaken in a number of the comparator jurisdictions. The responses to the CIS are reported only for firms with at least ten employees, in "innovation active" – as defined by Commission Regulation No 1450/2004. In order to retain comparability with this, the Jersey data were

[17] Firms with at least two employees.

adjusted to include only responses from those firms. Therefore the comparative analysis for these questions (questions 4-6) is on this basis, but the data is also presented in this annex for all respondent firms.

Similarly, comparator data for a number of indicators was based on SMEs (small and medium enterprises) only. Therefore the comparative analysis for these indicators (question 1 and question 2) was based on survey respondents with 249 employees or less. This annex presents the responses for all firms, in addition to the responses from SMEs only.

A summary of the responses for each question follows:

Q1. Over the period 2012-2014, into which geographic markets did your business sell goods and/or services?

All businesses with 2+ employees	Export outside Jersey		Export outside UK/CI	
	Unweighted	Weighted	Unweighted	Weighted
Agriculture and fishing	57%	89%	14%	17%
Computer and related activities	100%	100%	67%	57%
Construction and quarrying	12%	14%	0%	0%
Education, health and other services	13%	2%	10%	2%
Electricity gas and water supply	50%	18%	0%	0%
Financial and legal activities	83%	93%	71%	74%
Hotels, restaurants & bars	36%	74%	28%	52%
Manufacturing	31%	26%	23%	23%
Real estate and other business activities	21%	4%	7%	0%
Transport, storage and communication	22%	59%	22%	59%
Wholesale and retail trades	29%	34%	14%	12%
Total	**36%**	**52%**	**24%**	**35%**

Number of responses: 284

SMEs with 2+ employees	Export outside Jersey		Export outside UK/CI	
	Unweighted	Weighted	Unweighted	Weighted
Agriculture and fishing	50%	67%	17%	53%
Computer and related activities	100%	100%	67%	57%
Construction and quarrying	12%	18%	0%	0%
Education, health and other services	13%	2%	10%	2%
Electricity gas and water supply	100%	100%	0%	0%
Financial and legal activities	79%	88%	70%	84%
Hotels, restaurants & bars	36%	74%	28%	52%
Manufacturing	31%	26%	23%	23%
Real estate and other business activities	21%	4%	7%	0%
Transport, storage and communication	0%	0%	0%	0%
Wholesale and retail trades	30%	46%	14%	16%
Total	**34%**	**50%**	**23%**	**37%**

Number of responses: 272

Q2. Do you intend to grow your business over the next three years?

All businesses with 2+ employees	Ambition to grow	
	Unweighted	Weighted
Agriculture and fishing	71%	99%
Computer and related activities	100%	100%
Construction and quarrying	73%	83%
Education, health and other services	76%	82%
Electricity gas and water supply	100%	100%
Financial and legal activities	100%	100%
Hotels, restaurants & bars	70%	85%
Manufacturing	83%	98%
Real estate and other business activities	79%	99%
Transport, storage and communication	78%	98%
Wholesale and retail trades	77%	96%
Total	**81%**	**94%**

Number of responses: 279

SMEs with 2+ employees	Ambition to grow	
	Unweighted	Weighted
Agriculture and fishing	67%	96%
Computer and related activities	100%	100%
Construction and quarrying	72%	79%
Education, health and other services	76%	82%
Electricity gas and water supply	100%	100%
Financial and legal activities	100%	100%
Hotels, restaurants & bars	70%	85%
Manufacturing	83%	98%
Real estate and other business activities	79%	99%
Transport, storage and communication	67%	87%
Wholesale and retail trades	77%	95%
Total	**80%**	**92%**

Number of responses: 267

Q3. Please estimate your company's expenditure on ICT (computer software, IT equipment, communication equipment) in 2014, as a proportion of your company's turnover.

All businesses with 2+ employees	ICT spend as % of revenue		ICT spend as % of GVA	
	Unweighted	Weighted	Unweighted	Weighted
Agriculture and fishing	3%	3%	4%	4%
Computer and related activities	3%	5%	8%	11%
Construction and quarrying	2%	3%	6%	7%
Education, health and other services	4%	4%	6%	8%
Electricity gas and water supply	5%	3%	16%	11%
Financial and legal activities	5%	6%	7%	8%
Hotels, restaurants & bars	2%	3%	4%	4%
Manufacturing	3%	3%	4%	4%
Real estate and other business activities	4%	4%	6%	7%
Transport, storage and communication	3%	5%	7%	11%
Wholesale and retail trades	2%	2%	11%	10%
Total	**3%**	**4%**		**7.9%**

Number of responses: 286

ICT spend as a % of GVA calculated using GVA: Turnover ratios for each sector

Q4. During 2012-2014, did your business introduce any of the following?

All businesses with 2+ employees	New goods or services		New processes	
	Unweighted	Weighted	Unweighted	Weighted
Agriculture and fishing	71%	89%	0%	0%
Computer and related activities	100%	100%	17%	8%
Construction and quarrying	51%	74%	27%	56%
Education, health and other services	57%	48%	24%	33%
Electricity gas and water supply	100%	100%	100%	100%
Financial and legal activities	58%	60%	49%	64%
Hotels, restaurants & bars	80%	81%	24%	46%
Manufacturing	31%	32%	8%	45%
Real estate and other business activities	69%	66%	28%	49%
Transport, storage and communication	67%	97%	33%	41%
Wholesale and retail trades	63%	71%	25%	28%
Total	**61%**	**69%**	**29%**	**47%**

Number of responses: 289

Innovation active sectors (as defined by EU) with 10+ employees	New goods or services		New processes	
	Unweighted	Weighted	Unweighted	Weighted
Computer and related activities	100%	100%	20%	8%
Construction and quarrying	100%	100%	0%	0%
Electricity gas and water supply	100%	100%	100%	100%
Financial and legal activities	65%	58%	50%	65%
Manufacturing	43%	34%	14%	49%
Real estate and other business activities	100%	100%	0%	0%
Transport, storage and communication	86%	97%	29%	41%
Wholesale and retail trades	75%	84%	25%	4%
Total	**71%**	**68%**	**39%**	**53%**

Number of responses: 62

Q5. Approximately what proportion of the turnover of your business in 2014 came from goods and services which were either new to market or new to your business, or were significantly improved products or services?

All businesses with 2+ employees	Proportion of turnover from new products	
	Unweighted	Weighted
Agriculture and fishing	5%	6%
Computer and related activities	18%	15%
Construction and quarrying	7%	9%
Education, health and other services	7%	6%
Electricity gas and water supply	5%	5%
Financial and legal activities	7%	6%
Hotels, restaurants & bars	6%	8%
Manufacturing	5%	5%
Real estate and other business activities	11%	15%
Transport, storage and communication	8%	6%
Wholesale and retail trades	9%	9%
Total	**8%**	**8%**

Number of responses: 262
plus 25 "don't know"

Innovation active sectors (as defined by EU) with 10+ employees	Proportion of turnover from new products	
	Unweighted	Weighted
Computer and related activities	18%	15%
Construction and quarrying	5%	5%
Electricity gas and water supply	5%	5%
Financial and legal activities	8%	7%
Manufacturing	5%	5%
Real estate and other business activities	11%	11%
Transport, storage and communication	5%	6%
Wholesale and retail trades	4%	4%
Total	**8%**	**7%**

Number of responses: 61
plus 1 "don't know"

Q6. Over the period 2012-2014, did your business invest in internal Research and Development?

All businesses with 2+ employees	Invest in R&D	
	Unweighted	Weighted
Agriculture and fishing	43%	88%
Computer and related activities	100%	100%
Construction and quarrying	39%	69%
Education, health and other services	45%	57%
Electricity gas and water supply	100%	100%
Financial and legal activities	66%	78%
Hotels, restaurants & bars	28%	27%
Manufacturing	54%	85%
Real estate and other business activities	38%	63%
Transport, storage and communication	11%	30%
Wholesale and retail trades	39%	71%
Total	**45%**	**65%**

Number of responses: 286

Innovation active sectors (as defined by EU) with 10+ employees	Invest in R&D	
	Unweighted	Weighted
Computer and related activities	100%	100%
Construction and quarrying	100%	100%
Electricity gas and water supply	100%	100%
Financial and legal activities	65%	78%
Manufacturing	86%	91%
Real estate and other business activities	50%	44%
Transport, storage and communication	14%	30%
Wholesale and retail trades	50%	82%
Total	**65%**	**72%**

Number of responses: 62

Q7. Please detail any other factors that have held back innovation in your company.

Category	Unweighted	Weighted
Skills	43%	44%
Regulation	19%	27%
Cost of doing business	8%	9%
Access to finance	12%	8%
Economic climate	6%	7%
Lack of demand	5%	4%
Planning	3%	2%
Connectivity	4%	1%
Small local market	1%	1%
Competition	3%	1%
Procurement	1%	0.5%
Other	16%	17%

Numbers do not sum to 100 per cent as many companies identified barriers in more than one area.

Number of responses: 118

Selected responses to this survey question:

Being undercut by foreigners coming to the island and taking over trade with no insurance.
Regulatory restrictions & lack of access to finance
Increasingly high cost of employing people. Restrictively expensive freight service. Total focus on finance as an industry.
The cost of exporting goods has been a significant barrier. The lack of access to supportive finance for new initiatives has also been restrictive.
Lack of access to finance.
Lack of access to the right people with the right skills.
The scale of local market and challenge to opening up markets outside of Channel Islands.
Employment laws which do not help a business like mine which has so many peaks and troughs.
We cannot get locally trained staff to grow; we need off-island trained staff (i.e. licensed staff in the future).
Lack of access to the right people and regulatory restrictions.
Regulatory restrictions.
Reduction of work in our industry due to recession; now pricing up but skilled workers not available as some left the island.
Lack of access to finance.
Lack of access to quality staff, and not enough good qualified tradesmen & skilled labour.
Strict planning policy, and wind and solar power should be encouraged. Local graduates should be encouraged to come home, and the island should have most training facilities, such as a nursing school.
Lack of finance. As a small business we find the authorities give little or no help.
Employment laws, paperwork on States projects, health and safety.

Lack of support by immigration to grant more 0-5 year licences for businesses to engage skilled non-local labour, which supports business, trains locally qualified and utilises the known skill set rather than waste it.
Ability to employ people with less than five year residency
Lack of access to the right people with the right skills as unable to recruit suitably skilled staff in Jersey; States of Jersey employing English companies instead of local companies.
Lack of demand and associated cost of introducing new services that customers think is worth paying for.
Lack of access to finance, and the right people with the right skills.
General lack of demand in sector.
The economic climate which has prevented construction projects from going ahead.
Lack of access to the right people, unable to recruit calibre requirements.
Government's inflexible approach to employing non-locals, even though there are few/no locals applicants with both the skills and attitude needed for my business.
Lack of support from Jersey tourism
The degree of difficult to get a licence to employ someone from the UK, and if indeed permission is to be given the length of time it takes to get the licence and the heavy process to go through. I feel limited by the fact I am an overburdened, while there is no one in the field at present.
We have been unable to find employees who have the right skills, who have residential rights (registered etc.). This has led us to work under-staffed during our peak season reducing our ability to deliver a high quality service.
Market being dominated by same business, same service being offered as 20 years ago.
Lack of financial help
Customers willing to accept change
1) Would benefit significant from access to suitable business 'angel' with knowledge of online retail. 2) Loss of LVCR – but have now overcome some of this.
Lack of access to financial help
Lack of any investment funding or banking support (the 'Innovation fund' is just a big PR effort with NO practical substance to even successful candidates). No government support (hammered by social security for self-employed).
Lack of demand
A lack of direct action and the availability of suitable cost effective premises.
The introduction of long term care schemes with the focus on being placed in care services within the home.
Availability of (swimming) pool space and cost.
Lack of concrete policies and resources within our sector; lack of training for the right people. States of Jersey spend massive amounts sending people on courses where going forward they have no intention of making up once in that profession.
Our businesses restraints are having a limited/specific number of residential (care) rooms.
Delay in gaining of licenses for accommodation and competition from other sectors offering higher salaries (within Jersey). General cost and availability of accommodation.
Poor tourism visitors.
Staff have been on various courses, specifically IT related and visited other business that trade in our market. Regulations dictate our curriculum that we have to follow.
Lack of access to finance, lack of resources, lack of experienced personal.
Restrictive numbers of workers due to licence system which hinders business.

Limited access to skilled labour has restricted the company, reducing targets and expectations, alongside service achievements. Importing labour to the Channel Islands is expensive in regards to housing costs and resources etc. Expansion has also been hindered by competitions reluctance to allow markets to be opened up (i.e. electricity supply).
2014 was a difficult year economically and affected us financially. Turnover was down over the past 12 months which has meant that investment was lower than had been liked.
Communications; broadband is ridiculously expensive for businesses, over 100x more than UK mainland. This is a major restriction for us.
Software not available for the local market as it is too small to support/rewrite for.
Personnel skills; difficult to recruit within Jersey; Labour laws have become too burdensome, this needs amending; Lack of direct flights to European cities.
Throughout 2012-2014 period most of our efforts were targeted around anti-money laundering & governance to ensure ongoing compliance with regulatory legislation etc.
Regulatory oversight & overly restrictive and prescriptive ways of reregulating expected business to conduct business.
Regulatory restrictions and cost pressures.
Lack of access to the right people with the right skills.
Lack of access to the right people and right skills.
Innovation is driven by global and regional reviews and there is huge innovation in our company, but this happens outside of Jersey. We have innovative jobs in different regions.
There is ample demand for innovation. Existing products and services are adequate but still being improved. Regulatory and compliance burden diverting resource (principally management time) away from innovation. No lack of internal skills, just ever increasing demands of regulators and stakeholders.
We must comply with jurisdictional regulatory laws and governance together with policies and procedures put in place by our wider group.
Lack of access to the right people with the right skills.
A higher level of skills within Jersey would be helpful. IT skills sets often needs to be sources form elsewhere, often off island. Similarly higher quoted investment/private clients staff are not easily found in Jersey that will move firm.
Regulatory restrictions and compliance island-wide hampers innovation.
Lack of access to the right people with the right skills.
In the context of financial services – risk appetite and regulatory requirements are factors that curb innovation.
Regulatory restrictions and cost pressures.
More needs to be done to encourage and support start-up companies, such as investment opportunities and an incubator.
Lack of access to the right people with the right qualifications and skills.
Regulatory - slow engagement from FSC/restrictive approach adopted within the FSC to giving approval to innovation.
My company runs businesses which is a lease hold from the Liberation Group. I can only have products from their company. Se we are limited to what they provide.
Regulatory restrictions, lack of access to the right people with residential rights.
Lack of locally qualified bakers and pastry chefs in the island; Almost impossible to obtain a licence from population office for skilled workers outside Jersey. Too much importing of breed and cake products, need restrictions on imports for my businesses to grow. No government incentives for my business to grow. Very poor government support for my business (bakery). No financial support available in troubled times.

1) Proper training courses for hospitality within the island. 2) Restrictions on employment for acquisition of skilled employees that unfortunately do not reside in Jersey or have 5 years residency.
There is a lack of demand for innovative products in the hotel and accommodation sector. And market share by competition is stable. While designs are atheistic and driven by service and not innovation.
Fewer visitors to the island, cost and disruption of travel; and a lack of access to the right people/employment restrictions.
Regulation of undertakings laws is always a likely threat to any new business.
Not being allowed to employ from outside of Jersey.
Fill the empty berths in the marina's
Lack of resources of R&D within our particular industry sector.
The only real barrier to us expanding our business is in finding skilled local workers (without poaching and thereby raising the wage rate). Also we find the new employment laws are crippling to small business such as ours, who tend to increase and decrease the number of employees, depending on the work we have available for them at the time.
Lack of access to states of jersey innovation fund!! I should have made a film.
The biggest barrier has been the economic climate which has seen a restriction in the construction industry. Planning policy also restricts investment in new modern resources.
Fall in confidence to invest. The costly effects from other companies poaching our staff.
Government red tape, government legislation adding to costs, consistently rising government fees & expenses.
Difficulty in access to the right people with the right skills etc. with the willingness to work on a regular basis.
Dominant market share held by competitors in Guernsey.
Delays within States planning and building department
Lack of access to the right people with the right skills has occasionally held back innovation within our company.
Struggle to attract staff to our industry, plenty of customers, but not enough staff
Shortage of suitably qualified experienced personnel.
Government paper work, too much legislation, GST, IT IS, Employment laws, HSS work, Discrimination, Reviews, Planning.
Funding and time have been the biggest impediments; the Skill Accelerator has been a wonderful incentive. Access to locally qualified people with suitable specialist skills is poor. Internal training is needed, but this takes time.
Lack of access to the right skills (now resources), regulation restrictions (JFSC)
the strict regulation on employing staff in Jersey is preventing my company from growing and expanding. I have had to turn away a lot of opportunities due to a shortage of staff.
Lack of access to the correctly qualified people.
Awaiting resit of long overdue taxi review by the Transport and Technical Services Department
Biggest restriction to our business is internet speeds at Le Collette
Regulatory focus on legacy product sets rather than future needs/requirements. Inability to bring people in to cover local grasp in labour market.
Inability to recruit of island
As UK multi-national, product and services development is mainly driven from the UK mainland and not the Jersey store in particular.
Difficulties with set-up with third party service providers in UK, whilst being a Jersey based company.
Employment costs

Inadequate postal service to Europe (insurance of goods). No on-island training for this industry (goldsmiths/silversmiths). No clock repairers /lack of watch repairers. Lack of skilled personal within the industry (with the amount of jewellers here you would assume this would not be the case).
Being denied financial support from the CIS + RES scheme which in turn were given projects that have in the most part failed.
Slow response time to Customs clearing parts. Slow delivery from local Haulers; GST on small purchases. Poor communication suppliers and internet speeds, and utter useless service from Jersey Telecoms.
Lack of access to the right people with the right skills, and instead of helping us grow the business to the benefit of all - the States takes away our license to employ anyone not local. This does not happen in finance. Detail is little understood and no help or apprenticeships is offered to the necessity of industry who employs & serve many islanders.
Not being able to employ people without 5 years residency.
Lack of access to right people is always an issue
Not worth exporting as transport costs are too high.
Recruitment when competing with the finance sector.
Reluctance of some government bodies to expand & modernise.
The general lack of competition in supply chain; services and products are expensive due to the lack of competition.
Lack of access to the right people with the right skills.
Lack of access to people with the right skills due to licence restrictions and capability in the local market - particularly at a management level.
People. As our business has grown and diversified, we have struggled to recruit the right individuals with experience, skills, knowledge, and qualifications (residential) are the problems.
Whilst barriers to entry are high- the States policy on allowing UK retailers to ship goods in goods in at below market rates i.e. deducting VAT, but not reapplying GST puts local retailers at a disadvantage.
No support from States regarding training of staff in technical roles, no financial support, regulatory restrictions stifle progress.

Q8. How well does the education system in Jersey meet the needs of a competitive economy? (score 1-7)

All businesses with 2+ employees	Average score	
	Unweighted	Weighted
Agriculture and fishing	2.9	4.0
Computer and related activities	4.7	4.2
Construction and quarrying	4.0	4.3
Education, health and other services	3.5	3.6
Electricity gas and water supply	2.0	2.0
Financial and legal activities	4.2	4.5
Hotels, restaurants & bars	4.1	3.4
Manufacturing	3.8	3.4
Real estate and other business activities	4.1	3.7
Transport, storage and communication	4.1	4.0
Wholesale and retail trades	3.6	4.0
Total	**3.7**	**4.0**

Number of responses: 274

Q9. In your opinion, does Jersey retain talented people and attract talented people from elsewhere? (score 1-7)

All businesses with 2+ employees	Average score	
	Unweighted	Weighted
Agriculture and fishing	2.4	3.0
Computer and related activities	4.2	3.9
Construction and quarrying	3.5	3.8
Education, health and other services	3.0	3.2
Electricity gas and water supply	3.5	3.8
Financial and legal activities	4.2	4.3
Hotels, restaurants & bars	3.4	2.8
Manufacturing	3.4	3.2
Real estate and other business activities	3.3	2.9
Transport, storage and communication	4.6	5.0
Wholesale and retail trades	3.4	3.2
Total	**3.5**	**3.6**

Number of responses: 276

Q10: To what extent do States of Jersey purchasing decisions foster innovation? (Score 1-7)

All businesses with 2+ employees	Average score	
	Unweighted	Weighted
Agriculture and fishing	1.9	2.8
Computer and related activities	2.8	2.3
Construction and quarrying	2.7	3.5
Education, health and other services	2.4	2.8
Electricity gas and water supply	1.0	1.0
Financial and legal activities	2.3	2.9
Hotels, restaurants & bars	3.2	3.1
Manufacturing	2.9	2.6
Real estate and other business activities	3.1	3.0
Transport, storage and communication	2.2	1.9
Wholesale and retail trades	2.8	2.6
Total	**2.5**	**2.8**

Number of responses: 262

Q11: To what extent do businesses in Jersey adopt new technology? (Score 1-7)

All businesses with 2+ employees	Average score	
	Unweighted	Weighted
Agriculture and fishing	3.0	3.2
Computer and related activities	4.3	3.8
Construction and quarrying	3.7	4.3
Education, health and other services	3.5	4.0
Electricity gas and water supply	4.0	3.4
Financial and legal activities	4.3	4.3
Hotels, restaurants & bars	3.8	3.7
Manufacturing	3.6	4.4
Real estate and other business activities	4.3	3.9
Transport, storage and communication	3.7	3.8
Wholesale and retail trades	3.8	3.5
Total	**3.8**	**3.9**

Number of responses: 271

Q12: In Jersey, how intense is competition in the local markets? (Score 1-7)

All businesses with 2+ employees	Average score	
	Unweighted	Weighted
Agriculture and fishing	5.3	5.6
Computer and related activities	5.7	5.3
Construction and quarrying	5.3	5.9
Education, health and other services	4.1	4.7
Electricity gas and water supply	4.5	4.8
Financial and legal activities	4.7	4.7
Hotels, restaurants & bars	5.5	4.9
Manufacturing	5.4	5.5
Real estate and other business activities	5.2	5.8
Transport, storage and communication	4.3	4.1
Wholesale and retail trades	4.6	5.0
Total	**5.0**	**5.0**

Number of responses: 275

Q13: In Jersey, how strong is the protection of intellectual property, including anti-counterfeiting measures? (Score 1-7)

All businesses with 2+ employees	Average score	
	Unweighted	Weighted
Agriculture and fishing	2.7	4.4
Computer and related activities	4.5	4.5
Construction and quarrying	3.7	4.7
Education, health and other services	3.2	3.9
Electricity gas and water supply	4.0	4.0
Financial and legal activities	3.9	4.8
Hotels, restaurants & bars	4.2	4.5
Manufacturing	2.8	3.6
Real estate and other business activities	4.2	4.8
Transport, storage and communication	3.6	2.4
Wholesale and retail trades	3.7	4.2
Total	**3.7**	**4.4**

Number of responses: 248

ANNEX D - LIST OF INTERVIEWEES

The Innovation Review team held interviews over a period of four weeks with a number of businesses and stakeholders from 20 May to 16 June.

1. Siobhan Mcleod (Axis Mason)
2. Catherine Curtis (Stumpy Dog)
3. Martin Holmes (Jersey Construction Council)
4. Ian Wilson (Jersey Construction Council)
5. Colin Russell (Jersey Construction Council)
6. Johnny Moffet (Jersey Construction Council)
7. Chris Walters (Spoor & Fisher)
8. David Evans (Collas Crill)
9. Lucia Caporuscio (CPA Global)
10. Shaun Ryan
11. Steve Le Feuvre (Lysaght)
12. Frederick Mostert
13. Ed Daubeney (Envestors)
14. Geoff Cook (Jersey Finance)
15. John Harris (Jersey Financial Services Commission)
16. Victoria McEneaney (Royal Bank of Scotland International)
17. Adam Brown (Royal Bank of Scotland International)
18. Jason Laity (KPMG)
19. Rob Kirkby (KPMG)
20. Wendy Dorman (Chairman of Jersey Institute of Directors)
21. Chris Evans (Jersey Institute of Directors)
22. Chris Clark (Jersey Institute of Directors)
23. Eliot Lincoln (Jersey Chamber of Commerce)
24. Graeme Smith (Jersey Business)
25. Paul Masterton (Digital Jersey Executive Chairman)
26. Andy Jarret (Digital Jersey)
27. Melina Syred (Digital Jersey)
28. Mark Loane (C5 Alliance & Digital Jersey Board Member)
29. Ivan Nikkhoo (Siemer & Associates & Digital Jersey Board Member)
30. Gordon Fitzjohn (Grapevine Capital Partners Limited)
31. Steve Moffat (Applied Materials)
32. Kevin Taylor (Storm Technologies)
33. Ian Jauncey (Infinite Lightbulb)
34. Andrew Barrett (E-scape)
35. Dave Edwards (DWE Digital & TechTribes)
36. Julian Box (Calligo)
37. Andrew Scott-Miller (Race Nation)
38. Ian Osbourne (Airtel-Vodafone)
39. Daragh McDermott (JT)
40. Graham Hughes (Sure)
41. John Hackett (Brooklands Farm)
42. Bob Jones – (Jersey Dairy)
43. Eamon Fenlon (Jersey Dairy)
44. Charles Gallichan (Woodside Farm)

45. Peter Lamy (Somerleigh Farms)
46. Ian Barnes (President, Jersey Hospitality Association)
47. Bill Dolan (Vice President, Jersey Hospitality Association)
48. Mark Crowther (Vice President, Jersey Hospitality Association)
49. Paul Luxon (Jersey Hospitality Association)
50. Marcus Calvani (Jersey Hospitality Association)
51. Dave Chalk (Jersey Hospitality Association)
52. Nigel Robson (Jersey Hospitality Association)
53. Natalie Duffy (Jersey Hospitality Association)
54. Fiona Kerley (Jersey Hospitality Association)
55. Gerald Fletcher (Chief Executive Officer, Jersey Hospitality Association)
56. Chris Le Masurier (Jersey Oyster)
57. John Le Seelleur (The Seymour Oyster Company)
58. Dave Cowburn (Jersey Turbot)
59. Michael Taylor (Jersey Aquaculture Association)
60. Lisa McLauchlan (Sure)
61. Paul Clark (Mypad)
62. Colin Gibaut (Economic Development Department)
63. Stephanie Peat (Economic Development Department)
64. Mike King (Chief Officer of Economic Development Department)
65. Dougie Peedle (Chief Economic Adviser)
66. Judith Sullivan (Economic Development Department)
67. Joe Moynihan (States of Jersey Financial Services Policy)
68. Rod Bryans (Education Minister)
69. Phillip Ozouf (Assistant Chief Minister)
70. Andy Gibbs (Department of Education, Culture and Sport)
71. John Jackson (Planning and Environment Department)
72. David Witherington (Chairman of Skills Board)
73. Michelle Moffat (Skills Board)
74. Steve Lewis (Principal, Highlands College)
75. Glenda Rivoallan (Vice Principal, Highlands College)

ANNEX E – INTERVIEW DISCUSSION GUIDE

Thank you for agreeing to meet with the review team as part of the evidence gathering for the Jersey Innovation Review.

BACKGROUND

Senator Ozouf has commissioned Tera Allas to lead a review of innovation in Jersey. The review has been asked to consider the following question:

"What priority interventions should the States of Jersey put in place to accelerate innovation, and hence productivity growth, in the medium- to long-term?"

Part of the review will require an assessment of Jersey's current innovation strengths and weaknesses. A survey has been designed to collect some of this information but a key part of the evidence-gathering process will be through interviews with the Jersey business community and with key stakeholders. The evidence collected from both the survey and the interviews will help inform States policy on supporting innovation.

DISCUSSION GUIDE

During the interviews, **the review team would like to understand the experience of starting or growing an innovative business in Jersey**, or of using innovation to improve competitiveness.

The review team would like to discuss the following:

1. The **main strengths** of Jersey's innovation system.
2. Any **barriers to innovation** in Jersey.
3. The **impact of existing government policy on innovation**, e.g., taxation, regulation, competition regime, migration, procurement.
4. Any opportunities - **what should the States do in order to accelerate innovation**?

In addition, we would appreciate any comments you may have in relation to the following specific areas:

- How well does the **education system** in Jersey meet the needs of a competitive economy?
- To what extent do businesses in Jersey adopt **new technology**?
- How easy is it to access **debt or equity funding** to grow an innovative firm/idea?
- How accessible are **quality research institutions and researchers**? Is there any potential for spillovers from research undertaken nearby?
- What opportunities are there for **business-to-business and international collaboration** (e.g. knowledge networks)? What is your perception of the value of this?
- What opportunities are there for **collaboration with knowledge bases** (e.g. academic institutions)? What is your perception of the value of this?
- How strong is the **protection of intellectual property**?
- How important is having your **intellectual property registered in Jersey** rather than (or in addition to) major markets?
- Do **government purchasing decisions** foster innovation?
- How intense is **competition** in local markets?
- If you have experience of operating internationally, **how would you say Jersey compares** in its ability to encourage innovation? What are the key strengths and weaknesses?
- **Which sectors in Jersey do you think are the most and least innovative** and why? What could the government do to improve this?

ANNEX F – SUGGESTIONS MADE BY INTERVIEWEES

The review team heard a large number of suggestions for how innovation could be promoted in Jersey. These have been summarised below.

Money:

- Jersey should introduce an investment incentive scheme, similar to the EIS or SEIS in the UK.
- Jersey should develop a wider network of double-tax agreements, or investigate introducing unilateral relief, similar to Guernsey.
- Institutional funding is needed to provide smart money, including mentoring.
- Regulations should be changed to allow pooled investment funds.
- Jersey should form close relationships with venture capital funds based in London.
- Government should speak to locally-based investment funds to ask them to look locally for investments. This could be coordinated through Jersey Finance.
- It can take months to get a bank account, this should be resolved.
- Jersey Business should offer small grants to small businesses get over specific obstacles, e.g. £1k-£2k.
- The States should underwrite some P2P business lending.
- Jersey should consider offering R&D tax credits.
- Government should set up a loan fund or tax breaks for businesses to make infrastructure improvements.

Innovation Fund:

- Make equity investments.
- Provide grants, rather than loans.
- The Innovation Fund should be run as a professional investment fund.
- Support development of ideas, not just tangible businesses.
- Consider longer repayment holidays for loans.
- Should offer lower interest rates for loans.
- Should not require applicants to provide security.
- An initial short screening form as the full application form is too onerous.
- The application process should be easier for seed funding of less than £25k.
- A Growth Fund should be created to provide lifecycle support for companies beyond initial funding.
- The Innovation Fund should focus on a target area in terms of sector, stage of development and size of deal.
- The Board needs more expertise and knowledge of the markets in which applicants are operating.
- Monitoring and aftercare of loans should be provided by an independent consultant who could facilitate networking between recipients and other local businesses or government.

Skills:

- The Education system should engage with technology, such as in Malta and Singapore.
- Schools should be forward-looking and modern.
- The Education Department should approach businesses to get them involved in schools.
- Digital Jersey and Jersey Business should engage with young students earlier to get them interested in enterprise and technology and bring the business world into schools.
- There should be additional support for non-native English speakers.

- Tech entrepreneurs should be encouraged to move to Jersey.
- Jersey should introduce a programme similar to the UK Sirius programme, to attract entrepreneurs.
- Technology firms should be able to bring in talent from elsewhere.
- The education system needs a cultural shift to focus more on creativity and less on stable jobs and financial security.
- Government should introduce a scheme to incentive Jersey-born engineers to come back.
- Government needs to take the lead in offering professional training which firms will pay for.
- Digital experience should be injected into firms at Board level.
- Jersey Business should advise firms on how to find talent and how to deal with the Population Office.
- Jersey should develop a digital academy to develop a more digitally-aware workforce.
- Migration decisions need to be consistent.
- Jersey should develop a talent-pipeline.
- Population needs to be allowed to grow in order to avoid difficult decisions in future on tax increases or spending cuts.
- Jersey should offer tax breaks to attract certain skills, e.g. no tax on experienced software developers for first three years.
- Government should facilitate internship programmes where non-local students (from London, Tokyo, MIT) can be rotated between Jersey firms e.g. three month placements in finance followed by three months in a technology firm, three months in a start-up company etc.
- A group should be established to take forward leadership and management skills.
- The Skills Accelerator should be opened up to self-employed.
- Jersey should tap into internship or graduate development programmes offered elsewhere, whereby graduates working in the UK might spend part of their development in Jersey.
- Jersey should attract more international students, and international students should be allowed to do work placements while in Jersey.
- Jersey needs to create an environment where STEM graduates want to come back to work.
- A hospitality school should be started, and more should be done to promote the hospitality sector as a career.
- Resources are required to support adult skills. Someone in government needs to take responsibility.
- Permissions to employ migrants need to be more evenly spread between sectors.
- Training should be provided for staff in small companies to learn customer service skills, retail skills, cashing up or simple banking/book-keeping.

Digital sector:

- Government needs a 20-25 year vision for the digital sector.
- Digital Jersey needs to consult more with the sector.
- Digital Jersey should play more of a promotional role, similar to Jersey Finance.
- The digital sector should be invited to join trade delegations.
- Digital Jersey should be merged with Jersey Finance.
- Government should let the market choose what it wants, rather than picking specific sub-sectors.
- Government should set the conditions for growing digital and then get out of the way.
- Government should pick 2-3 things which are the most important opportunities for the digital sector, e.g. e-government, fibre, 4G island, and focus on achieving these.
- Jersey should market itself as a solution provider, e.g. approach multinational digital firms and ask what they need from a jurisdiction e.g. skills, legal-framework.
- Jersey cannot compete with London or Silicon Valley so should instead partner with them.
- Jersey companies should seek to become suppliers and customers of Silicon Valley firms, to learn the speed at which they have to operate.

- Government should not focus on developing eHealth in the new hospital as eHealth does not work in a hospital environment.
- Teams should be taken to Silicon Valley every quarter.
- The technology sector should be encouraged to be more collaborative.
- Jersey should bring in incumbent firms, e.g. a FinTech player, to promote the digital sector.
- Jersey should focus on adjacent opportunities, e.g. developing a technological solution to KYC (know your customer).
- A clear funding pathway is needed for technology firms.
- More mentoring should be provided, e.g. the Accenture FinTech programme.
- Scale-ups are the real opportunity, inward investment activity should focus on attracting established, growing companies to Jersey.
- Government needs to consult with firms to create a roadmap for the sector and what needs to change in the regulatory environment to achieve this.
- Jersey needs to build relationships, e.g. the visit from Samsung.
- Look for who might be a big player, take a risk and build relationships with the up and coming firms – pick ten and might get two winners.
- Need to find a niche based on customer demand, could look to the past e.g. data privacy.
- Need to get recognised as a jurisdiction for Apple App Store and Google Play Store.
- E-government needs strong leadership to succeed and show the world that Jersey can be a digital leader.
- Jersey can be a testbed for innovative solutions for the telecoms sector.
- Government should obligate JT to provide gigabit WiFi to new businesses.

Intellectual Property:

- IP legislation needs to be updated.
- Jersey should introduce a primary registry.
- Jersey should introduce anonymous first filing.
- IP laws should be compliant with the Paris and Madrid Conventions.
- Jersey should speak to multinational firms to find out what is needed to become an IP hub.
- Jersey should develop a cutting edge IP framework, based on the model being considered by the European Commission.
- Jersey should introduce an instant deposit system for trademarks.
- A single law draftsman should lead development of new IP law, in consultation with customers.

Procurement:

- Government should focus on value, not cost.
- Government should consider lifecycle costs.
- Government should not always go out to tender if a potential supplier has brought an innovative idea.
- The procurement process should include face-to-face meetings, not just rely on documentation.
- Government's capital programme should be more certain.
- The procurement portal should be improved.
- Tender evaluation should be more transparent.
- Construction tenders should be required to implement BIM (Building Intelligent Models).
- Government should outsource more services, not just goods.
- Government should try to influence levels of leadership and management through e.g. procurement.
- Government should adopt a joined-up approach to procurement, to improve cost efficiency and standardisation.

- The right people should be involved in procurement from the start to save asking irrelevant questions.
- States procurement should be more forward-looking, e.g. follow-me telephony.

Enterprise support:

- Subsidised space should be provided for an incubator or accelerator.
- The States should provide deeply discounted legal, financial, HR advice for incubated companies.
- Government should coordinate a private sector led incubator.
- Government should set aside a physical space with limited building/planning control to allow testing and proving of building ideas.
- Collaborations between Creative Industries Jersey, Jersey Arts Trust and Digital Jersey e.g. a FabLab
- There should be a communal space for design/creative industries with e.g. welding equipment and 3D printers.
- There should be more showcasing of success, e.g. an exhibition to coordinate with Enterprise Week.
- Jersey Business should offer a one-stop shop.
- Start-ups should have travel costs subsidised to allow visiting suppliers and potential customers.
- Smaller companies should be given tax breaks to allow them to compete with established firms.
- More information should be available to prospective inward investors.
- The States Voluntary Exit Scheme should include an incubator for startups.
- Jersey should provide meeting space in London for use by small firms meeting their customers/funders.
- Government should promote networking between local firms, e.g. all firms who have won trade awards could be involved in an event.
- Jersey should introduce something similar to the UK's Enterprise Zones, but focussed on exports e.g. companies would pay no taxes until they export a product. This could include preferential shipping rates.
- Government should ask companies "how can we help you?"
- Successful entrepreneurs and high net worth individuals should be used to mentor young firms.
- Jersey needs to focus support on firms who have the ability to innovate and lead, not all firms are in a position to do so.
- Government should support all sectors, not just those with high value added.
- Government should facilitate collaboration between agriculture firms, e.g. fund an agronomist for firms to draw on.
- Duties on alcohol should be reduced to bring Jersey prices in line with elsewhere.
- A lower rate of GST should be introduced for local products and local produce.
- A visitor tax should be considered as an alternative to GST.
- Government need one-stop shop for aquaculture.
- A one-stop shop for innovative ideas, possibly through Jersey Business as they understand the issues businesses face.
- Retailers should be encouraged to embrace technology. Use the internet, not run away from it.
- Chamber of Commerce should run workshops to introduce businesses to the benefits of technology and digital.
- There should be more awareness of what support is available from e.g. Jersey Business. Small businesses such as carpenters or plumbers could benefit from the services offered.

Regulation:

- Government licensing and regulation should be rationalised, e.g. one single licence for opening a bar/restaurant rather than entertainment licence, liquor licence etc.

- Regulation should be less combative; there should be a bias against regulatory activism.
- Regulations should be simple and electronic-based for small businesses.
- Government should not significantly increase the minimum wage as this could put innovative firms out of business.
- The Companies Registry should not be run by the JFSC – finance and non-finance regulation should be separate.
- Cut red tape and potentially tax or Social Security for creative start-ups.
- Government should coordinate Digital Jersey, JT and CICRA more effectively.
- Regulation should allow things like popup hotels.
- Planning should be streamlined through the e-government initiative.
- CICRA should be given more resources to make decisions more quickly.
- Government needs to move more quickly and stop being a barrier to business.
- Trading Standards laws should be reinforced to stop people falsely labelling something as "Jersey"
- Parishes should be less restrictive – e.g. charging retailers to open on Liberation Day or over-policing what is outside a retail store. Needs to be more encouraging and less negative.
- Planning should be more supportive of businesses trying to diversify e.g. agriculture businesses moving into catering or accommodation.

Other:

- E-government should include procurement.
- E-government should be progressed as a priority.
- Jersey should introduce a feed-in tariff scheme, to allow selling electricity back to the grid. This could result in Jersey becoming a solar island.
- The tidal system is an opportunity.
- Jersey should become a research centre for renewable energy.
- Jersey should have a municipal WiFi network, like Estonia.
- Jersey should be used as a test-bed.
- Government should promote Jersey as a test-bed for financial services products.
- Government needs to cooperate with big data and civic hacking by making its data available to use.
- Gigabit Jersey (fibre network) should be completed as a matter of urgency.
- Mobile roaming should be improved and made cheaper, e.g. replicate the EU cap on roaming costs.
- Public ownership of utilities should be sold off.
- More cooperation between Crown Dependencies e.g. Financial Ombudsman.
- A centre of excellence for engineering should be established in Jersey.
- Government should set up a working group to establish whether engineering and IP should be a target sector.
- Links should be established with academics to help establishment of local engineering firms.
- Jersey needs to join the World Trade Organisation.
- Jersey should partner with big research institutions, e.g. Imperial College's VC fund.
- Fuel surcharges should be introduced for ferry passengers, to make freight costs cheaper.
- The harbour should be extended to accommodate freight ships on UK to Europe routes.
- Government should subsidise more air routes to get visitors to the Island.
- Soft loans or grants should be provided to maintain built heritage.
- Jersey should market itself as a healthy island.
- Jersey should market itself for sports tourism.
- Shared creative spaces should be set up, on the edges of town.

ANNEX G – COMPARATIVE ANALYSIS

Money:

M1: % of companies engaging in in-house research and development (R&D)

Jersey	72
Ireland	64
Estonia	54
Luxembourg	48
Malta	39
Cyprus	23
UK	*15*

Jersey data from 2014 Innovation Survey
All other data from 2010-2012 Community Innovation Survey
UK Based on all sectors
Ireland based on 2012 European Commission definition of innovation active sectors
All others based on 2004 European Commission definition of innovation active sectors

M2: Government-financed BERD (Business Enterprise Research and Development) as a % of GDP

Estonia	0.12
Iceland	0.10
Israel	0.10
UK	0.09
Ireland	0.07
Luxembourg	0.04
Switzerland	0.02
Jersey	0.01

Jersey data from 2014, review team's calculations
All others from OECD STI Outlook
Estonia and UK from 2013
Ireland, Israel, Singapore and Switzerland from 2012
Iceland and Luxembourg from 2011

M3: Total information and communications technology (ICT) spending as % of GDP

Jersey	7.9
Switzerland	3.3
United Kingdom	3.0
Luxembourg	2.0
Ireland	1.0

Jersey data on ICT spending as % of turnover from Innovation Survey
(adjusted using GVA: turnover ratios by sector)
Comparator data from OECD
Jersey data from 2014
Luxembourg from 2011, Switzerland and Ireland from 2010, United Kingdom from 2009

M4: Availability of debt

Qualitative assessment, based on survey evidence, interviews and access to finance research

M5: Availability of equity

Qualitative assessment, based on survey evidence, interviews and access to finance research

Talent

T1: Government expenditure on education as % of GDP

Malta	8.0
Iceland	7.4
Cyprus	7.2
Ireland	6.2
UK	6.0
Israel	5.6
Switzerland	5.3
Estonia	5.2
Hong Kong	3.8
Luxembourg	3.2
Singapore	3.1
Jersey	2.5

Jersey data from Education Department for 2014
Comparator data from World Bank
Luxembourg from 2010
Iceland, Ireland, Malta, UK, Estonia, Cyprus, Switzerland and Israel from 2011
Singapore and Hong Kong 2013

T2: Business perceptions of quality of education system

Switzerland	**6.0**
Singapore	**5.8**
Ireland	**5.4**
Cyprus	**5.2**
Malta	**5.0**
Iceland	**4.9**
Hong Kong	**4.8**
Luxembourg	**4.6**
UK	**4.6**
Estonia	**4.4**
Jersey	**4.0**
Israel	**3.7**

Jersey data from 2015 Innovation Survey
Comparator data from 2014-15 WEF Executive Opinion Survey

T3: % of population that has gained tertiary education

Israel	46
UK	41
Ireland	40
Luxembourg	39
Estonia	37
Switzerland	37
Jersey	36
Iceland	35
Cyprus	34
Malta	14

Jersey data from 2011 Census
Comparator data from OECD, for 2012
All based on 25-64 population

T4: % of first degree awards in science and engineering

Hong Kong	35
Ireland	24
Estonia	22
UK	22
Cyprus	21
Switzerland	21
Malta	19
Jersey	19
Iceland	18
Luxembourg	15

Jersey data from Education Department
Jersey level on wider definition of STEM was 38%, UK level was 42%
Comparator data based on more narrow definition - UK figure was little over half on this basis so Jersey also halved
Comparator data from OECD
Hong Kong data from 2006, Switzerland data from 2011, all other data from 2012

T5: Business perceptions of capacity to attract/retain talent

Switzerland	6.0
Singapore	5.6
UK	5.5
Hong Kong	5.5
Luxembourg	5.3
Ireland	4.7
Malta	4.2
Iceland	3.9
Cyprus	3.8
Jersey	3.6
Israel	3.5
Estonia	3.1

Jersey data from 2015 Innovation Survey
Comparator data from 2014-15 WEF Executive Opinion Survey
Comparator data average of retain talent and attract talent questions

T6: Firms' Leadership and Management capabilities

Jersey	~3
UK	3.0
Singapore	3.0
Ireland	2.8

UK, Ireland and Singapore based on average for World Management Survey questions
Based on Skills Board research, Jersey does not appear to do significantly better or worse than UK, which scores similar to the available comparators

Knowledge

K1: Quality of scientific research institutions

Switzerland	6.3
Israel	6.0
UK	6.0
Singapore	5.5
Ireland	5.3
Hong Kong	4.8
Estonia	4.7
Iceland	4.6
Luxembourg	3.9
Cyprus	3.5
Malta	3.3
Jersey	Low

Comparator data from WEF Executive Opinion Survey 2014-15
Jersey qualitative score, based on very limited scientific research institutions

K2: International collaboration on innovation by firms

UK	31.1
Estonia	31.0
Israel	27.9
Luxembourg	27.9
Ireland	16.5
Jersey	Medium

Some evidence of this in Jersey
Comparator data from Community Innovation Survey
Comparator data are the percentage of innovative firms in international collaboration
Luxembourg, Ireland and Israel 2006-08
Estonia and UK are 2008-2010

K3: SME collaboration with higher education institutions

UK	19.6
Ireland	12.1
Estonia	10.8
Jersey	Medium
Luxembourg	7.0
Malta	5.0
Cyprus	4.6

Some evidence of this in Jersey
Comparator data from Eurostat
Comparators are proportion of firms employing 10+ who collaborate with higher education institutions

K4: Patent applications per million of population

Switzerland	1,031
Luxembourg	937
UK	922
Iceland	305
Ireland	248
Singapore	194
Israel	177
Malta	92
Estonia	66
Cyprus	42
Jersey	37
Hong Kong	23

Jersey data from UK Intellectual Property Office, average 2010-2012
Comparator data from World Intellectual Property Office
Jersey is average of 2010-2012 filed from Jersey postcode with UK IPO
International data not strictly comparable as it is for filing anywhere, not just at local office.
Jersey scores much lower than any UK region.

Business Environment

E1: New business density

Hong Kong	28.1
Cyprus	22.5
Luxembourg	21.0
Malta	13.6
UK	11.0
Iceland	8.2
Singapore	8.0
Jersey	4.5
Ireland	4.5
Israel	3.0
Switzerland	2.5

Limited business starts per 1,000 working-age population
Jersey data based on 300 new limited businesses in 2012 (30% of all business starts, in line with 2014 ratio)
Comparator data from World Bank, based on 2012

E2: Ease of starting a business

Hong Kong	2.5
Singapore	2.5
Iceland	4.0
Estonia	4.5
Ireland	6.0
UK	6.0
Cyprus	8.0
Switzerland	10.0
Israel	13.0
Jersey	18.0
Luxembourg	18.5
Malta	34.5

Number of days taken to start a business, using World Bank methodology. See World Bank (2015)
Domestically-owned, limited liability company with 10-50 local employees and turnover of over £3.5m
Jersey indicator is government's estimate (including consultation with some practitioners)
Comparator data are from World Bank Ease of doing business

E3: Firm-level technology absorption

Iceland	6.2
Israel	6.0
Luxembourg	6.0
Switzerland	6.0
Singapore	5.7
UK	5.7
Hong Kong	5.6
Ireland	5.6
Estonia	5.4
Malta	5.2
Cyprus	5.1
Jersey	3.9

Comparator data from WEF Executive Opinion Survey, score out of 7
Jersey data from 2015 Innovation Survey, score out of 7

E4: Intensity of local competition

Hong Kong	6.1
Malta	6.1
UK	6.1
Singapore	5.7
Switzerland	5.7
Estonia	5.5
Cyprus	5.4
Ireland	5.2
Luxembourg	5.2
Jersey	5.0
Iceland	4.9
Israel	4.2

Comparator data from WEF Executive Opinion Survey, score out of 7
Jersey data from 2015 Innovation Survey, score out of 7

E5: Proportion of households with broadband access

Iceland	92.4
UK	80.4
Switzerland	77.0
Jersey	68.9
Israel	68.1
Luxembourg	67.7
Estonia	66.2
Ireland	65.4

Comparator data from OECD broadband statistics
All for 2011, except Israel
Jersey data for 2011, from the Channel Islands Competition and Regulatory Authority (CICRA)

Science and Innovation Policies

P1: Strength of Intellectual Property Protection

Singapore	6.2
Luxembourg	6.1
Switzerland	6.0
UK	5.9
Hong Kong	5.8
Ireland	5.6
Estonia	4.9
Iceland	4.8
Israel	4.6
Malta	4.5
Jersey	4.4
Cyprus	4.3

Comparator data from WEF Executive Opinion Survey, score out of 7
Jersey data from 2015 Innovation Survey, score out of 7

P2: Government Procurement of Advanced Technology Products

Singapore	5.1
Luxembourg	4.6
Israel	4.3
Estonia	4.2
Malta	4.2
Hong Kong	4.0
Switzerland	4.0
Cyprus	3.7
UK	3.7
Iceland	3.6
Ireland	3.5
Jersey	2.8

Comparator data from WEF Executive Opinion Survey, score out of 7
Jersey data from 2015 Innovation Survey, score out of 7

P3: Tax Incentives

Qualitative assessment, Jersey's low tax environment considered to incentivise innovation

Innovation Outputs

O1: % of firms engaging in product innovation

Jersey	698
Luxembourg	30
Ireland	28
Malta	26
UK	24
Cyprus	21
Estonia	21

Jersey data from survey question based on 2012-2014
Comparator data from Community Innovation Survey 2010-2012
Based on firms in "innovation active sectors" as defined by the European Commission
Firms with 10+ employees only
Jersey question asked by multiple choice question, rather than "yes/no"

O2: % of firms engaging in process innovation

Jersey	47
Luxembourg	33
Cyprus	28
Malta	26
Ireland	26
Estonia	24
UK	14

Jersey data from survey question based on 2012-2014
Comparator data from Community Innovation Survey 2010-2012
Based on firms in "innovation active sectors" as defined by the European Commission
Firms with 10+ employees only
Jersey question asked by multiple choice question, rather than "yes/no"

O3: Sales of new to market and new to firm innovations as % of turnover

Switzerland	16
UK	14
Cyprus	11
Malta	10
Ireland	9
Luxembourg	8
Estonia	8
Jersey	7
Iceland	6

Jersey data from survey question based on 2012-2014
Comparator data from Community Innovation Survey 2010-2012
Based on firms in "innovation active sectors" as defined by the European Commission
Firms with 10+ employees only
Jersey question asked using bands, rather than asking for the exact %

O4: % of SMEs engaging in exports

Jersey	50
UK	20

Jersey data from survey question based on 2012-2014
UK data from House of Lords Committee on SMEs (2013) which suggest "one in five UK SMEs export", compared to the EU average of one in four.
While up to date data was not available for the rest of the comparators, data from 2005 suggest that the UK was broadly in the middle of the comparators, with Estonia leading:

Estonia	22
Iceland	16
Ireland	11
UK	9
Luxembourg	9
Malta	6
Cyprus	3

From European Commission (2007)

O5: High growth firms as % of all firms (excluding micro-firms)

Estonia	6.0
UK	6.0
Luxembourg	4.6
Israel	3.9
Jersey	3.0

Based only on firms who had 10+ employees at the start of the growth period.
Jersey data based on 24 high growth firms, out of 790 firms employing 10+
Jersey definition is 20% average growth in employment for four years
Comparator data based on 20% average growth for three years
Israel data from 2011
Estonia and Luxembourg data from 2007
UK data from NESTA

O6: % of small and medium enterprises (SMEs) that have ambitions to grow

Jersey	92
UK	73

Jersey data from survey question based on 2012-2014
UK data from Small Business Survey 2014

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