KPMG
cutting through complexity

Digital Jersey Limited

Opportunity analysis

11 December 2015

kpmg.com/channelislands

Private and confidential

Contents

1 Highlights

Introduction

This report presents Digital Jersey Limited ("DJL") with a set of targeted digital opportunities identified through evidence-based research. The findings from this report are intended to focus DJL's business development planning activities for 2016 which will be articulated in their forthcoming business plan. During the course of our research we also identified a number of "cross-cutting concerns" that in our view need to be addressed to increase the probability that these opportunities can be successful. Pursuing both the short term business development opportunities whilst also working on strategically positioning Jersey to be able to be a world class digital player by dealing with these cross-cutting concerns should in our view be central to DJL's overall strategy.

Ultimately even if only a small number of opportunities are successfully nurtured this will have a noticeable and tangible impact on "Jersey Plc", due to our relatively small size and high level of personal connectivity. This success will engender greater levels of enthusiasm and commitment to pursue ever more opportunities.

Inward investment strategy highlights

Fintech is an obvious candidate for investment for Jersey given Jersey's developed finance industry. However, it is important to note that Jersey's finance industry operates in niche areas and therefore the adjacent fintech opportunities are correspondingly narrow, although customers are on Island and easily accessible. The immediate opportunities are centred around processes, but new areas may emerge e.g. in the regulatory sandbox provided for crypto currencies.

The Island is already exporting **MedTech** and the opportunity exists to expand that offering and also provide such services domestically.

Arguably, a new hospital together with a new data protection law are two key stimuli for a new wave of digital opportunities. A forward looking infrastructure project with perhaps an innovation lab attached is a once in a generation opportunity.

The **testbed** concept is also one area we recommend exploring immediately given the breadth of opportunities, particularly within MedTech and **IoT**. Jersey presents real and different opportunities for a unique test bed space and these are being actively pursued and should continue to be supported and encouraged. The IoT opportunities extend beyond the devices themselves to areas such as data analysis, security and inter-connectivity.

Most if not all of the opportunities available to DJL create or rely on **data** sets. Jersey currently has a unique window of opportunity as changes to EU data protection regulations mean that Jersey is likely to repeal its existing law and replace it with a new framework. The Information Commissioner is open to working with local and international agencies to create a framework which assists this sector and potentially provides stimulus. The manner in which the new data protection law will be crafted will need to be carefully nuanced to ensure that Jersey's international reputation is maintained whilst ensuring specific opportunities are permitted.
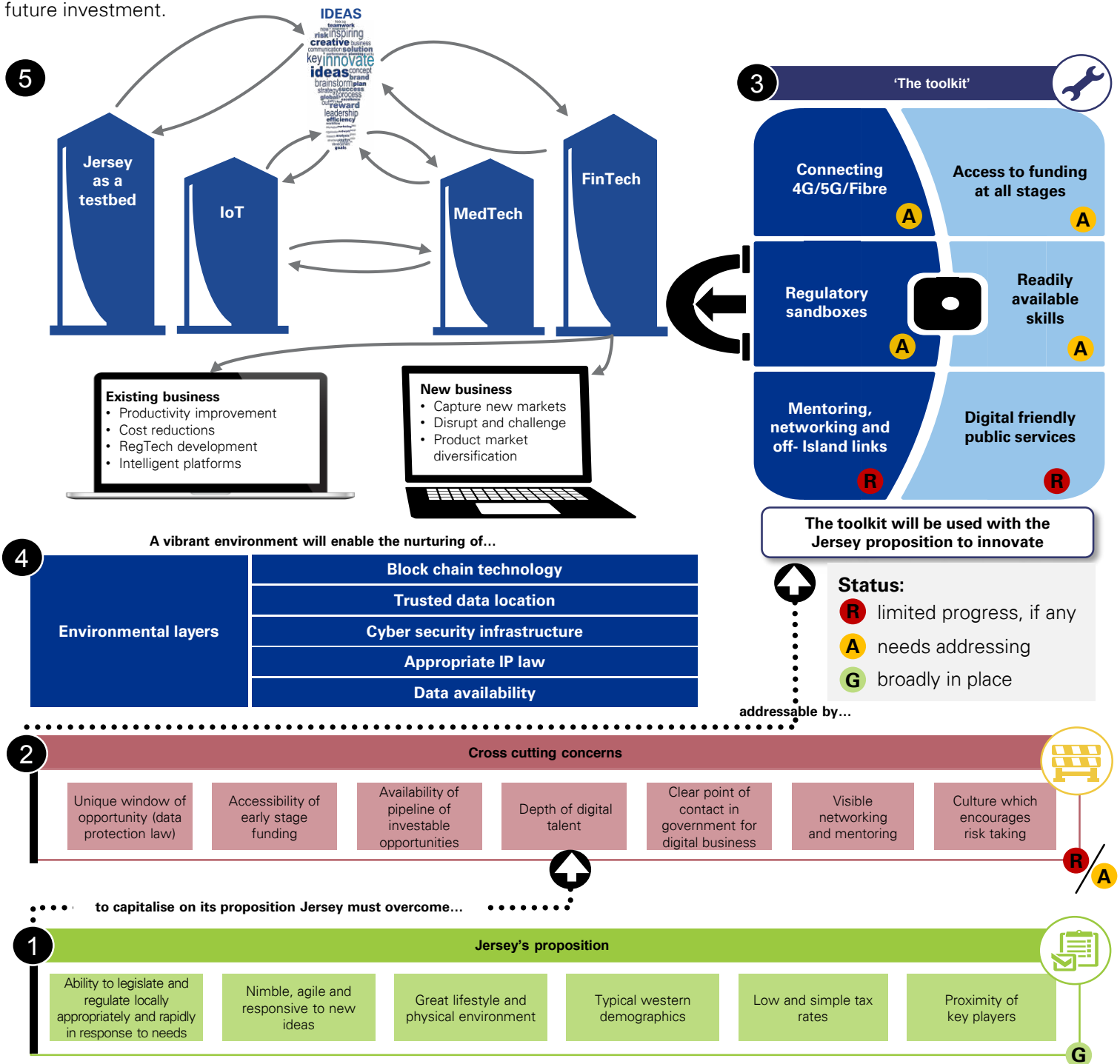
Fundamental to enabling and encouraging a number of these initiatives is eGovernment. Specific eGovernment initiatives such as digital records and a unique digital ID will for example be hugely valuable to MedTech and will encourage growth in this area. Additionally, a digitally enabled government and digitally/data aware citizens demonstrates to the world that **Jersey really is ready to do digital business, and business digitally.**

1 Highlights

Strategic framework

Our research highlighted that none of the digital opportunities existed in **isolation** but there were some **broader** opportunities that could underpin and strengthen a number of the narrower opportunities (which we have termed the **environmental layer**).

During our research we defined Jersey's value proposition and concluded that despite Jersey having an attractive value proposition generally, there are currently some elements that inhibit digital growth ("cross-cutting concerns"). In addition, there are certain 'tools' which need to be in place to allow innovators to build technology products in Jersey. We believe that only by addressing the cross-cutting concerns and delivering the toolkit will DJL enable digital excellence on the island and attract future investment.

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IDEAS

Jersey as a testbed

IoT

MedTech

FinTech

Existing business
- Productivity improvement
- Cost reductions
- RegTech development
- Intelligent platforms

New business
- Capture new markets
- Disrupt and challenge
- Product market diversification

3 'The toolkit'

Connecting 4G/5G/Fibre **A**	Access to funding at all stages **A**
Regulatory sandboxes **A**	Readily available skills **A**
Mentoring, networking and off- Island links **R**	Digital friendly public services **R**

The toolkit will be used with the Jersey proposition to innovate

Status:
- **R** limited progress, if any
- **A** needs addressing
- **G** broadly in place

4 A vibrant environment will enable the nurturing of…

Environmental layers	Block chain technology
	Trusted data location
	Cyber security infrastructure
	Appropriate IP law
	Data availability

addressable by…

2 Cross cutting concerns

| Unique window of opportunity (data protection law) | Accessibility of early stage funding | Availability of pipeline of investable opportunities | Depth of digital talent | Clear point of contact in government for digital business | Visible networking and mentoring | Culture which encourages risk taking |

R/**A**

to capitalise on its proposition Jersey must overcome…

1 Jersey's proposition

| Ability to legislate and regulate locally appropriately and rapidly in response to needs | Nimble, agile and responsive to new ideas | Great lifestyle and physical environment | Typical western demographics | Low and simple tax rates | Proximity of key players |

G

2 Approach
General approach

Summary

DJL commissioned this research as part of their business planning exercise for 2016 and it is intended to assist in focussing future business development activities for 2016. During the course of a four week project, KPMG conducted a broad analysis of emerging and existing digital opportunities in order to identify those opportunities most suitable for DJL to focus on. The methodology shown below was used to analyse all identified opportunities.

Phase 1: A broad list of potential digital opportunities was compiled

In order to create a broad list of potential digital opportunities we:

- performed desk research on authoritative information sources, most notably various Gartner reports, KPMG's global thought leadership articles, Oxford Economics reports and various other publications (over **40** publications)

- held discussions with local and non local digital experts (over **32** individuals)

- consulted with authorities such as Digital Catapult in the UK

- engaged with the local community through community workshops and through online discussions held on Slack

Please refer to Appendix 2 *Acknowledgements* for a full list of sources used in this report.

Phase 2: "Common sense filter" applied to all opportunities

We eliminated opportunities unsuitable for Jersey by assessing whether or not each opportunity would be viable based on, for example, the Island's physical limitations. We applied this filter based on our understanding of each opportunity and our knowledge of the local environment. A full list of all opportunities analysed can be found in Appendix 1 *Research Analytics*.
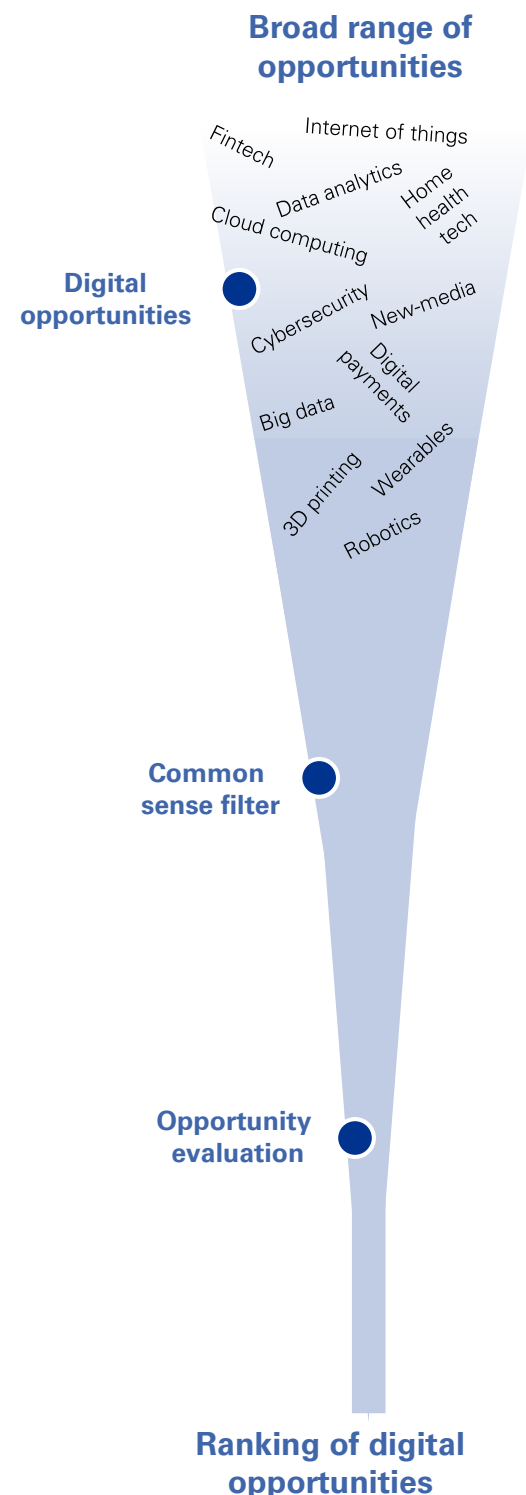
Phase 3: Opportunity evaluation

All remaining opportunities were assessed using a robust, standardised evaluation process. The chosen methodology was validated together with DJL and assesses each opportunity against an agreed set of success factors, qualitative measures and potential local barriers.

Full details of our methodology can be found overleaf.

Phase 4: Ranking of digital opportunities

All the opportunities appraised during the detailed evaluation phase were ranked according to how beneficial they are perceived to be for the Island, together with a measure of their likelihood of success.

Broad range of opportunities

Fintech
Internet of things
Cloud computing
Data analytics
Home health tech

Digital opportunities

Cybersecurity
New-media
Big data
Digital payments
3D printing
Wearables
Robotics

Common sense filter

Opportunity evaluation

Ranking of digital opportunities

2 **Approach**
Evaluation methodology

Evaluation methodology outline

It is important to understand what 'success' looks like in the context of a digital business in Jersey given the Island's limited resources. Each digital opportunity was evaluated and scored through three distinct lenses:

1. Success factors

- new jobs created (within and outside the digital sector) at **30%**
- GVA / cost reduction at **20%**
- taxation generated directly by the opportunity under the current model at **10%**
- limited immigration at **10%**
- high growth potential at **10%**
- reputational at **10%**
- exportability of the product/service created at **10%**

Where GVA, tax or employment criteria penalises digital start-ups in particular, wider measures of success were considered in order ensure a balanced evaluation.

Each opportunity was scored on a scale of **1 to 10** based on how well they adhered to the above success factors and apportioned with the indicated weight.

2. Qualitative evaluation criteria

For the typical business operating within the considered opportunities we assessed how likely they are to:

- be a good fit for Jersey's environment
- operate adjacent to other businesses already operating in Jersey's environment
- have the right maturity level for Jersey
- attract other vertical or horizontal business to Jersey

Each opportunity was scored on a scale of **1 to 10** based on how well it adheres to the above qualitative criteria.

By combining the **success factor** score with the **qualitative criteria** score we determined the **potential benefit to the Island** for each digital opportunity considered.

3. Barriers to success

A number of barriers were identified that may inhibit the development of the digital opportunities locally. Each opportunity was evaluated against the following set of barriers:

- access to funding (in terms of seed capital, bank loans, grants, etc.)
- access to local development centres (other than the ones already provided)
- access to skills locally
- local culture/acceptability for the Island
- current legislation and regulation, particularly around the use of data and impressions of IP law
- business model sustainability
- connectivity requirements
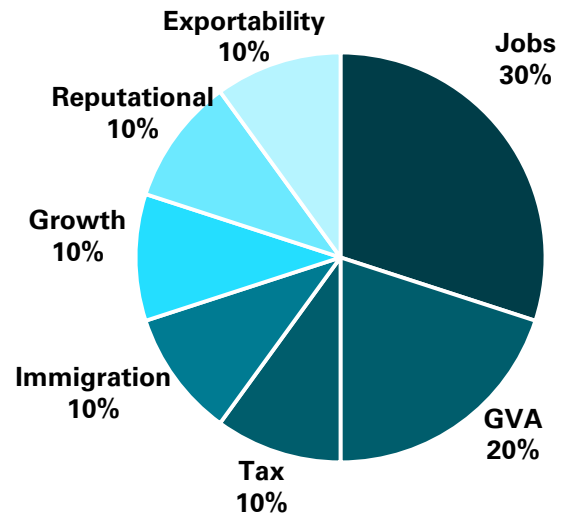
> **Note:**
> As highlighted in Section 6 – *Cross-cutting recommendations* we consider it vital that the Action Plan on the **Jersey Innovation Review** is executed at speed as it deals with a number of the above areas. Doing so will enable the development of a number of digital opportunities as detailed in Section 4 - *Digital Opportunities.*

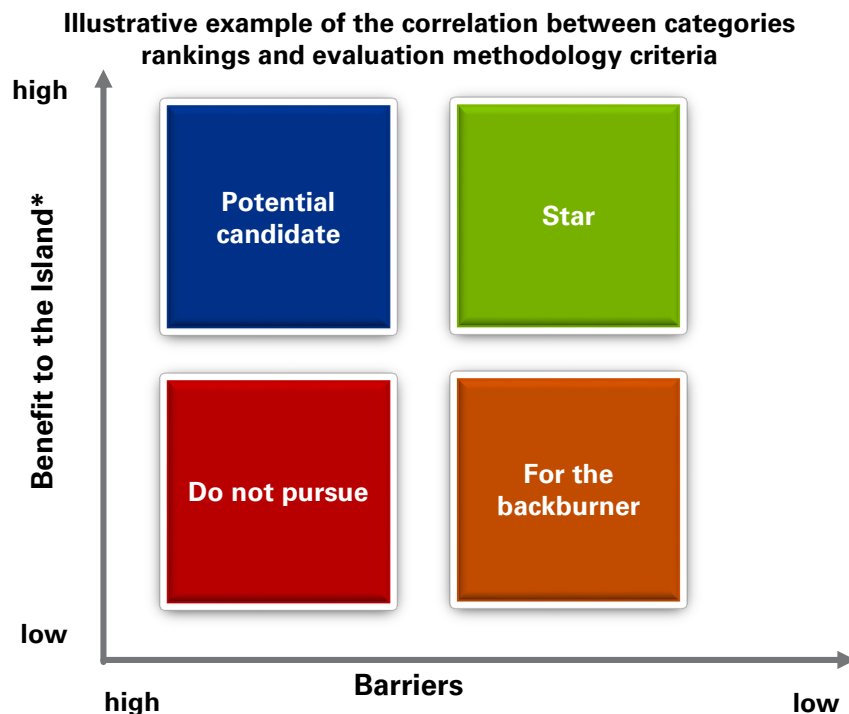# 2 **Approach**
Ranking of opportunities

Ranking of opportunities

Following the three phase evaluation process each opportunity was assigned to one of **four categories**. Allocation was determined by assessing both how likely the opportunities are to be of **benefit to the Island** and also on how likely Jersey is to successfully **grow, attract and develop** such opportunities (by overcoming existing barriers). The four ranking categories are:

- **star opportunities** (high benefit potential with low/medium barriers)
- **potential candidates** (high benefit potential with high barriers and medium benefit potential with low/medium barriers)
- **for the backburner** (medium benefit potential with high barriers)
- **do not actively pursue** (low benefit regardless of the barrier level)

It should be noted that **no opportunity is being discounted**. **The purpose of this report is simply to prioritise and allocate business development resources in the short term.**

By its very nature it is extremely difficult to foresee which opportunities in the technology sector will be winners before they have been actively pursued and had time to develop. However, building on the recommendation set out in the **Jersey Innovation Review** to work towards the development of digital clusters, we believe it makes senses to focus energy where Jersey can quickly build momentum in areas with potential medium or long term benefits, but also recognising that even over the lifetime of the 2016 business plan, other opportunities may emerge and should not be discounted. There must be flexibility in the general approach.
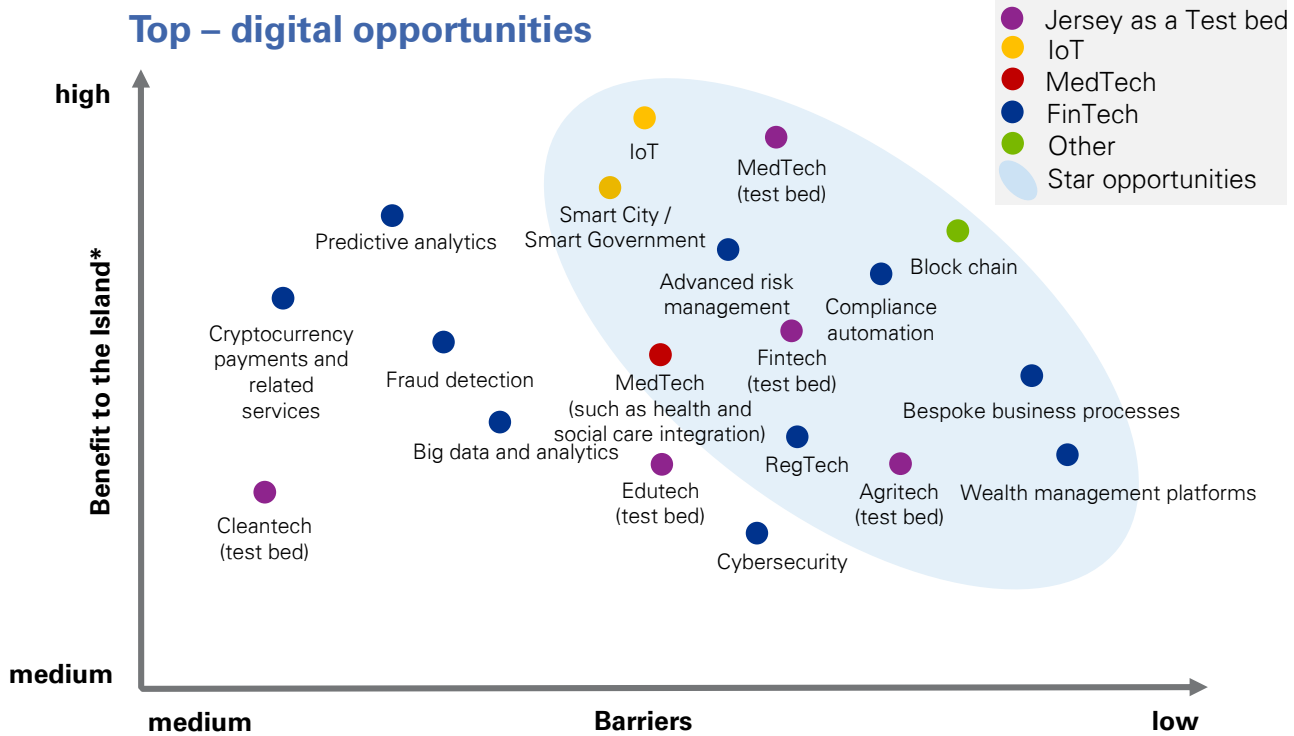
Illustrative example of the correlation between categories rankings and evaluation methodology criteria

*How well the opportunity fits the success factors and qualitative criteria as outlined in Section 2 - *Approach (Evaluation methodology)*

2 Approach
Ranking of opportunities (cont.)

Ranking of opportunities (cont.)

The below diagram summarises the top digital opportunities based on the methodology presented previously. Please note that some opportunities such as **IoT, Block chain** and **Smart City** are very broad in scope, however, for illustration purposes we included them below as just one "dot". A comprehensive list of recommendations can be found in Section 4 – *Digital Opportunities.*

Top – digital opportunities

*How well the opportunity fits the success factors and qualitative criteria as outlined in Section 2 - *Approach (Evaluation methodology)*

3 Strategic recommendations

Detailed description of strategic recommendations

1. Strategic growth directions

We consider that strategically Jersey can:

a. build a **FinTech** industry by capitalising on its existing financial services industry
b. lead in the **MedTech** area
c. become a world renowned **test bed**
d. be an attractive place for **IoT** testing and development

In **order to excel** Jersey needs to develop its environmental prerequisites at the right maturity level, such as:

- ensure **data is available and accessible** for businesses that may require such data for legitimate business purposes (provided all legal requirements are adhered to)
- ensure relevant **digital skills are being developed and retained** locally
- ensure that the Island is, and is perceived as a **cyber secure** location for doing business
- have a clearly understood **intellectual property ("IP")** proposition
- encourage **block chain** development

a. Fintech

It is perhaps not surprising that the most immediate and visible opportunities for the Island appear to exist as adjacencies to its biggest industry – financial services. However, it should be noted that financial services in Jersey is relatively narrow in scope (i.e. private client trusts and similar, funds and banking) and therefore the adjacencies are similarly narrow. Additionally, the rapid rise of automation and machine intelligence does present something of a threat to aspects of the industry.

By considering the areas of financial services currently undertaken in Jersey, our analysis and discussions with others suggests greater focus is needed on particular areas and less so on others. In particular, the opportunity to use technology to significantly improve the client onboarding process, to reduce the unit cost of and speed of ongoing transactions, and to generally improve the information available both to financial services companies and their customers is compelling. The Fintech opportunities most likely to benefit Jersey, based on our evaluation, are:

- **bespoke business processes enhancement software**. Referring to software that reduces the manual/paper based work needed to run the day to day activities of a business operating in the trust sector and in fund administration. Those two sectors are the bulk of the Jersey's financial services industry and incentive for automation is high given the labour cost
- **compliance automation.** Partial or total automation of manual/time intensive functions such as KYC, CDD, EDD or other specific compliance functions
- **advanced risk management systems**. Both decision assistance and also automation of manual/time intensive functions normally performed within the risk management function
- **wealth management platforms**. Platforms that support and enable various wealth management functions
- **RegTech**. Improving the efficiency of regulation processes in Jersey

Within RegTech, encouragingly the JFSC and the Registrar are very engaged and willing to work with industry to explore this area.

Whilst we acknowledge that such improvements will not produce exponential growth in the industry, we believe that successfully implemented they will dramatically improve competitiveness and, combined with Jersey's world leading knowledge in those areas, provide a valuable platform for future linear growth. However, other competitor jurisdictions are well aware of the opportunities presented by Fintech, MedTech, Test Bed and IoT particularly in Guernsey, Luxembourg and Switzerland. Jersey does need to adopt the pace inherent in the technology sector to gain any competitive advantage.
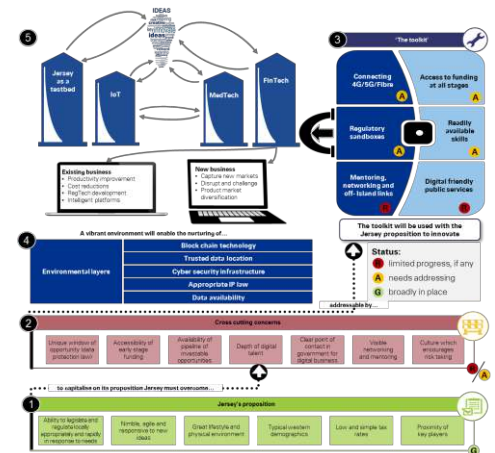
3 Strategic recommendations

Detailed description of strategic recommendations (cont.)

Perhaps more controversially, we would suggest that Jersey consider establishing an innovation lab to begin exploring the use of machine intelligence to automate the more repetitive and administrative tasks to allow business to focus on higher value activities. A cognitive finance lab in Jersey would be world leading and allow Jersey to be at the forefront of development in that area and have line of sight of the associated roadmaps.

b. MedTech

MedTech provides an interesting opportunity because the Island is already seeing some success in exporting services in this area, however, MedTech services are being utilised to a lesser extent on Island. Although the local health authorities are using such services, this can be improved with a better engagement of the local health authorities with MedTech services. The ability to efficiently process and administer patient records has some interesting adjacencies to other industries (in particular financial services) and there could well be some synergies available there too. Also, beyond the services currently provided, the advent of a new hospital provides a unique opportunity to develop skills around medical devices and products (we note Ireland's continued success in this area) which ties in with our suggestion that IoT should be a focus area for the Island (there is a significant cross-over between IoT and MedTech). Indeed the presence of an local integrated health and social care system that is facing typically western medical challenges (particularly in the areas of chronic diseases and ageing population) positions the Island ideally to become a test bed on how to efficiently study and ultimately address those challenges. eGovernment is an obvious and fundamentally critical key enabler of MedTech domestically and would need to provide everything from unique identifiers and new ways in which internal and external processes take place.

c. Jersey as a Testbed

Jersey has often been suggested as an ideal Testbed for new technologies and we are aware of a number of global players who have shown interest in utilising the Island for that purpose. Whilst we acknowledge that accepting the approaches of such companies is unlikely to directly create a significant number of local jobs, the opportunity to put Jersey "on the map" should not be under-estimated in attracting other investors and their businesses to the Island. In addition, the companies that use Jersey for such purposes are likely to contribute to a degree of up skilling the local workforce which would contribute to an enhanced skills pool for IoT development. Even if companies developed in Jersey eventually had to relocate elsewhere to scale up to global requirements, a constant pipeline of such companies would still address many of the success factors identified elsewhere in this report. Whilst there are relatively few Testbeds with Jersey's characteristics globally, the key point is reducing any friction "in the system" to make such activities worthwhile for those that wish to test here – from responding to the initial approach onwards, to avoid losing the opportunity, i.e. a Testbed 'concierge' service.

The barriers to entry in IoT are currently lower, so there is a real opportunity for Jersey to seize a competitive advantage by acting as a testbed first and building capability. It is possible that as capability builds, Jersey is able to exploit 'home grown' ideas. An example of this would be those ideas suggested by the DJL Research and Development Technical Action Group and it's members including using the proximity of the sea as a differentiating factor (e.g. underwater cartography or underwater GPS). Whilst these do not appear to be immediate "star opportunities" according to the criteria we have laid out they do represent the type of opportunity which could be facilitated by a greater community built around the testbed concept.

3 Strategic recommendations

Detailed description of strategic recommendations (cont.)

d. IoT

It is estimated that there will be tens of billions of internet connected devices by the end of the decade, transforming many enterprises, creating new business models, improving efficiency of existing business model and creating new revenue streams. It is also important to think beyond the connected "thing" to the ecosystem it exists within (such as the communication, data and analysis). At this stage there would appear to be an opportunity for a wide variety of enterprises to test small-scale applications in different ways in a test bed environment in order to develop business cases for wider implementation. In addition, the data generated creates a huge pool of data creating opportunities to analyse that data in numerous ways (such as: asset use optimisation, insurance, marketing, pay to use etc). If Jersey can position itself firstly as a suitable test bed for IoT devices (a "smart island" rather than "smart city"), it could potentially join a rapidly growing ecosystem at an early stage with low barriers to entry and begin to grow domestic capability and perhaps also provide spin off opportunities for data analysis. As the number of IoT services deployed increased then the need for security to be "baked in" at the outset will correspondingly increase.

The current activity around IoT shows no sign of abating and in our view it provides Jersey with a unique opportunity to be involved in the making of technology rather than just the using of it. Whilst the industry is fast developing, it is in an early stage, with much lower barriers to entry than financial services with relatively few global players. However, as it is not a natural adjunct to any existing industry it does present more of a risk, but does have the potential to provide exponential growth. However, much more so than in respect of Fintech, Jersey will need to quickly address the cross cutting concerns highlighted elsewhere in this report to be successful.

2. Environmental layers

In order to succeed Jersey needs to develop its digital environmental prerequisites to the right level of maturity as follows:

a. Cyber Security

In June 2015 the States of Jersey (the "SOJ") conducted a cyber security review of a number of facets of Island life from local businesses to the Island's critical national infrastructure. A number of action points have resulted from that and are currently being compiled in to a strategy document to be approved internally by the end of Q1 2016 (these actions range from technical software solutions through to cultural change and possibly the introduction of the equivalent to the UK Cyber Essentials). These actions are being compiled by a task force comprised of the SOJ, the JFSC, the States of Jersey Police, the Information Commissioner and DJL. Currently there are some ongoing actions which are taking place led by the JFSC, the Education Department and the Jersey Police. We have been particularly encouraged by the interest and activity of the JFSC in this area. A recruitment process for a key cyber security individual in the SOJ is also underway.

A robust cyber security platform for the Island is a key environmental layer we have identified for Jersey and these matters need to be addressed considerably more rapidly than currently timetabled. In addition sufficient funding needs to be allocated by the SOJ to ensure that this matter is addressed. It is also noted that the number of Islanders with appropriate cyber security credentials is currently limited and it is likely that a combination of rapid re-skilling and/or immigration will need to be encouraged to ensure that resourcing is available to deliver the action points.

DJL should ensure that it continues to participate in the task force, however, any education or skills requirements needed should remain with the SOJ relevant departments.

b. Block chain

Block chain offers a decentralised register of ownership by recording every transaction in the system, from creation of a "block" through to any number of transfers made. By using block chain, all users know who owns every "block" at any time.

Within financial services most transactions that currently require brokers, custodians, clearing houses, central depositaries and the involvement of lawyers and accountants can potentially be settled immediately and with very low transaction fees with block chain based solutions. Block chain potential is not limited to the finance industry and can have many other uses, including setting up tamper proof asset registries, exchanges, databases or voting systems.

3 / **Strategic recommendations**

Detailed description of strategic recommendations (cont.)

A robust action plan for attracting companies experimenting with or eager to set-up a block chain business locally should be in place. Attracting and nurturing those kind of companies locally will position the Island as a centre of excellence within the block chain domain driving innovation and growth. This can be facilitated by a "block chain" friendly regulator (and steps have already been taken by the introduction of the regulatory sandbox) and governmental spending in block chain technologies (say to modernise some of their legacy databases or systems).

Although there are pockets of activity, with some emerging visible successes, the number of individuals here with appropriate block chain skills is currently limited and it is likely that a combination of rapid re-skilling and/or immigration should be encouraged to ensure resourcing is available to complement the skills that are here to deliver the action points.

c. Data availability and trusted data location

Jersey currently has a unique window of opportunity as changes to EU data protection regulations mean that Jersey is likely to repeal its existing law and replace it with a new framework. The Information Commissioner is open to working with local and international agencies to create a framework which assists this sector and potentially provides stimulus. The manner in which the new data protection law will be crafted will need to be carefully nuanced to ensure that Jersey's international reputation is maintained whilst ensuring specific opportunities are permitted. DJL needs to work closely with the Government to ensure any changes take account of any opportunities for the technology sector. We note that Guernsey is positioning itself in this area.

d. Intellectual property

When an innovator develops some IP in the Island, or potentially transfers some to the Island the innovator will wish to ensure that there is an appropriate IP framework that gives suitable legal protection.

It is not felt that the Island's current 'secondary registration' system (provided membership of the appropriate convention framework is secured) is a constraint (as stated in the **Jersey Innovation Review**) but the lack of a primary registration system might lead to a perception that the framework is not adequate.

Greater innovation will lead to the potential for IP to be developed in the Island and possibly registered here. Jersey needs to understand what its proposition in this area is and how it fits in with the current taxation model, particularly with regards to how royalties etc. flow to Jersey in the absence of double tax treaties with many significant markets. These matters are complex and require a separate workstream to ensure they are fully understood so that DJL and other agencies understand what is possible and that potential new entrants are informed accordingly. As a first step, a simple infographic setting out the current system would be helpful.

3. The "toolkit"

In order to allow innovators to exploit the strategic recommendations, Jersey needs to present them with a 'toolkit' which they can 'pick and choose' from. This toolkit should include the following (it is noted that all will need improvement to a greater or lesser degree):
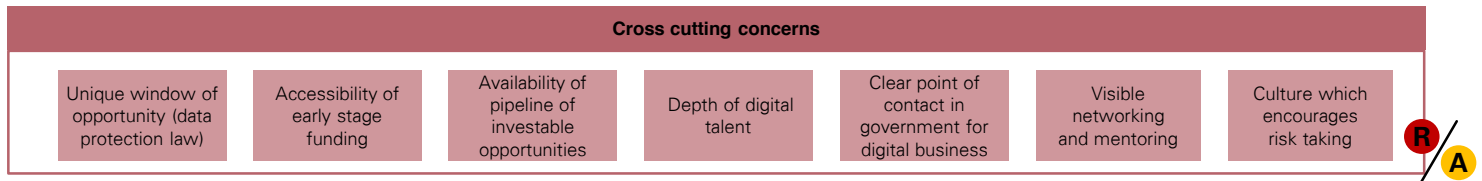
- **Island wide availability of fibre and 4G/5G** – ensuring connectivity is key to develop any digital initiative
- **regulatory sandboxes** – similar to the one on virtual currencies in order to act as a catalyst for innovation and growth
- **mentoring, networking and Island wide links** – in order to accelerate the adoption (or rejection) of any new digital initiative
- **access to customers** – easy for Fintech adjacencies, but off Island networks will be key for others
- **access to funding** – especially for start-ups and ramp-ups
- **readily available skills** – in order to facilitate growth locally and help build an attractive location for business to relocate to
- **digital friendly government** – encourage local government to be "friendly" towards adopting digitally enabled solutions

3 / Strategic recommendations

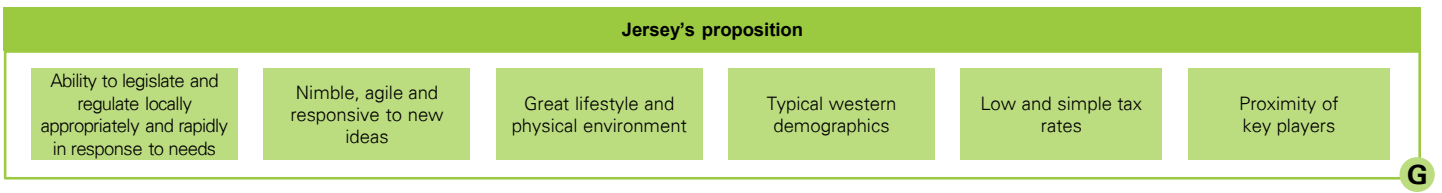## Detailed description of strategic recommendations (cont.)

4. Cross cutting concerns

DJL should be aware of some various cross cutting concerns that inhibit digital growth locally and collaborate with Government and other agencies to address them. In addition, annually DJL should review the wider market position to continually review the cross cutting concerns list and keep up momentum in addressing them:

Cross cutting concerns						
Unique window of opportunity (data protection law)	Accessibility of early stage funding	Availability of pipeline of investable opportunities	Depth of digital talent	Clear point of contact in government for digital business	Visible networking and mentoring	Culture which encourages risk taking

R / **A**

5. Jersey's proposition

DJL should seek to build on Jersey's unique value propositions when attracting new business or growing existing ones:

Jersey's proposition					
Ability to legislate and regulate locally appropriately and rapidly in response to needs	Nimble, agile and responsive to new ideas	Great lifestyle and physical environment	Typical western demographics	Low and simple tax rates	Proximity of key players

G

Many of the classic requirements for accelerators (e.g. access to funding at all stages, experienced mentoring, access to global networks etc.) are tantalisingly close in Jersey and if a step change in collaboration across the relevant areas could be facilitated then Jersey could in our view provide a compelling story in this area. Even if companies "started life" in Jersey eventually had to relocate elsewhere to scale up to global requirements, a constant pipeline of such companies would still address many of the success factors identified elsewhere in this report.

4 Digital opportunities
Focusing on the short term inward investment strategy

4.1 Fintech

Fintech – Star opportunities

Specific	Why star opportunities?
Adjacencies ■ bespoke business processes (e.g. software for day to day execution of trust and fund administrators in Jersey, whom form the bulk of the Jersey financial services industry) ■ compliance automation (automation of functions such as KYC, CDD and EDD) ■ advanced risk management systems ■ wealth management platforms (software for day to day execution of wealth management functions)	■ close proximity customers of financial institutions and supporting industries and close network of key individuals ■ reputational and marketing **advantage** from building bespoke financial software in a highly regarded and **well regulated** international financial centre ■ key financial services industry **skills and expertise** readily available to provide information to support the software development process ■ demand will be driven by local businesses wishing to remain **competitive** by driving long term efficiencies ■ automation and driving down resource time and cost will create spare capacity to concentrate on other business areas and growth ■ the potential export market will be mixed between global for any successful KYC type product to a more limited "offshore" type product for other products. However, such development will provide a defensive play for our current main GVA generator
RegTech ■ various opportunities (such as JFSC API databases being used to streamline processes)	■ this will encompass matters ranging from day to day interactions with the JFSC and Registry through to wider regulatory matters such as CRS, FATCA, sanctions monitoring, company incorporation ■ many regulatory processes in these areas are in need of streamlining and development ■ use of the regulatory 'sandbox' from the toolkit will be pivotal as well as a digital friendly government

4 Digital opportunities
Focusing on the short term inward investment strategy

4.1 Fintech (cont.)

Fintech – Potential candidates

Specific	Why potential candidates?
Cryptocurrency payments and cryptocurrency related services ■ custody ■ reporting ■ other	■ groundwork has already commenced in Jersey and virtual currency legislation is impending effectively creating a '**sandbox**' for assets up to £150k ■ jersey's developed finance industry and finance skills base provides a **solid platform** for new finance related businesses entering the market ■ technologies related to virtual currencies are relatively new and likely to see **high growth** ■ this opportunity is not a "star" due to current perception and reputational risk surrounding virtual currencies, which will likely change as the technologies develop. The "UK national risk assessment of money laundering and terrorist financing" from October 2015 classified the money laundering risk associated with virtual currencies as low. So whilst common public perception is not favourable, it appears logical to presume that it may only be a short term timeframe before such crypto currencies find wider favour and Jersey should seize the opportunity
■ cryptocurrency exchange	■ the presence of a cryptocurrency exchange will be attractive for other crypto currency based business
Process improvement ■ fraud detection/forensic services ■ big data ■ predictive analytics	■ Jersey has a **highly regarded regulatory environment** with robust AML and compliance legislation and therefore available skills and infrastructure to utilise in the development process of fraud and forensic software ■ the ever increasing burden of **compliance** with new laws and regulations and the need to be viewed as a well regulated jurisdiction drives demand for fraud and forensic services ■ potentially a large amount of unanalysed financial data in Jersey to perform big data analytics/predictive analytics
Cyber security: ■ cyber security solution development	■ whilst Jersey businesses may benefit from using these end products, there is no particular jurisdictional advantage for developing these technologies locally. However, Jersey does have some existing skills with cybersecurity solution development and the door should not be closed on those businesses that seek to develop this area if they contribute to the 'environmental layers' discussions it may be that this opportunity becomes a 'star'

4 Digital opportunities
Focusing on the short term inward investment strategy

4.1 Fintech (cont.)

Fintech – For the back burner

Specific	Why for the back burner?
Transactional: ■ payment platforms ■ digital and mobile payments ■ money remittance (banking and non banking) ■ dynamic currency conversion ■ clearing and settling ■ high frequency trading ■ e-wallets ■ forex	■ Jersey only has a limited retail banking sector, thus technological solutions can arguably be developed more easily in other jurisdictions that do ■ decisions regarding new technology initiatives are usually made at group level and Jersey predominantly houses subsidiaries of Group companies with key decisions based in larger jurisdictions such as UK, US and Hong Kong ■ notably however Jersey may in some circumstances be suitable as a testbed for these technologies (see Testbed digital opportunities overleaf)
Customer/Operational: ■ card issuing ■ point of sale ("POS") hardware and software	■ whilst Jersey businesses may benefit from using these end products, there is no particular jurisdictional advantage to developing these technologies locally

Fintech – Don't actively pursue

Specific	Why don't actively pursue?
Funding ■ investment platforms (crowdfunding)	■ whilst Jersey businesses may benefit from using crowdfunding platforms (if legislation allows it) as they can act as a catalyst for start-ups, there is no particular jurisdictional advantage to developing these technologies locally
RegTech ■ A.I. for finance and legal industry (automatic document reading and interpretation / identification of high risk asset pool a global event and so on)	■ Jersey law firms are predominantly focused on providing high value, complex advice and representation rather than standardised legal documents limiting the need for such services ■ expected resistance to exploring automated solutions especially in corporate law ■ limited access to skills locally that can build such software

4 Digital opportunities
Focusing on the short term inward investment strategy

4.2 Jersey as a testbed

MedTech and IoT opportunities that build upon the opportunities created in the test bed environment are explored in separate sections (Sections 4.3 and 4.4).

Jersey as a testbed – Star opportunities

Specific	Why star opportunities?
Fintech ■ Fintech ecosystem experimentation (i.e. with full digital payments system roll-out in a contained environment), experimentation of KYC or with cyber security	■ natural fit for Jersey due to financial sector experience and the presence of a small scale contained environment
AgriTech ■ sustainable farming ■ vertical farming ■ agri-innovation	■ Jersey has limited participants in this market, namely the dairy and potato market, therefore easier to approach and bring together ■ existing international **export** channels of dairy and potato products with strong associated PR ■ global increase in milk demand i.e. Jersey Dairy are exporting milk products to China
MedTech ■ new hospital infrastructure with possibility of adjacent innovation lab ■ typical western chronic conditions and ageing population	

Both AgriTech and MedTech are also excellent platforms for the IoT.

Jersey as a testbed – Potential candidates

Specific	Why potential candidates?
EduTech ■ innovative educational delivery systems ■ mixed remote/on site education experiments ■ virtual/remote education	Jersey faces a number of challenges within education that EduTech innovators could take advantage of. For instance: ■ university grants no longer offered to students by Government creating demand for an alternate means of education ■ Jersey doesn't have its own university offering a broad range of courses ■ high local demand for quality education and Jersey continues to face challenges in attracting and retaining high quality of teachers. Exploring virtual education options could relieve this pressure ■ other than wholly private schools all educational establishments are managed through one Government body ■ there are a number of innovative educators on the Island with the potential to significantly expand their reach by technological mean e.g. a locally sourced video course
CleanTech ■ general CleanTech ■ water and tidal energy generation	Jersey offers a naturally powerful tide, ownership of the sea bed rights, low sea pollution levels and low sea traffic providing workable conditions for testing of tidal power generation and other water technologies

4 Digital opportunities
Focusing on the short term inward investment strategy

4.2 Jersey as a testbed (cont.)

Jersey as a testbed– Don't actively pursue

Specific	Why don't actively pursue?
AgriTech ■ genetically modified crops ■ general AgriTech	Not suitable for Jersey due to: ■ potential reputational issues around being the testbed for genetically modified crops with risk of damage to the local ecosystem ■ general AgriTech is too broad, however we recognise high potential in other types of specialised forms of AgriTech (appropriately flagged in our report)
■ pollution control	Jersey has low levels of pollution and therefore no real basis in which to develop such technologies

4 Digital opportunities
Focusing on the short term inward investment strategy

4.3 IoT

IoT – Star opportunities

Specific	Why star opportunity?
IoT testbed and some permanent solutions	■ Jersey is an **attractive place to experiment** with emerging technology implementation on **a small scale** given it has an advanced economy contained in a small location ■ enhanced IoT experimentation quality – local IoT experiments/applications are less likely to be influenced by various external factors (ranging from social, cultural or due to the number of choices available) to the extent that they would be influenced in a more diverse/populated location ■ one of the few places in the world with good quality **connectivity** in a contained island environment that boasts a fully working economy with close ties to the western markets ■ IoT initiatives are relatively new and likely to experience rapid growth, building a competitive advantage early on in this area is likely to act as a catalyst for attracting new business and developing exportable technology ■ less concerns regarding data breaches as its more easy to protect data in a contained environment ■ consideration, in the long term, should be given on how to locally retain the skills and technology developed ■ the above factors for Jersey being suitable as a IoT platform positively align with to objectives desired by eGovernment ■ the rapid rollout of fibre is required to assist this. The current deadline of 2018 is arguably too slow to act as a differentiator and potentially allows competitors to catch up

A specific area to consider exploring further is linking up with Visit Jersey to further understand the behaviour of our visiting tourism and business populations. Currently data sets are limited although we understand are being explored, but the use of GPS trackers on rental cars, potential exchange of values with visitors perhaps over free data downloads would enable us to understand behaviour and also direct market data driven offers. Larger cities such as London, New York and so on are keen to understand such behaviour patterns and perhaps Jersey could be a test bed for future development.

Smart City/Smart Government Various application as appropriate, such as: ■ dynamic traffic management system (such as congestion management system and smart traffic lighting) ■ smart parking system ■ energy management systems (such as for the building environment: smart lighting, predictive maintenance, climatic control, and so on) ■ creative city spaces (such as experimentation with changing lighting patterns and thus shadows as well) ■ integrated transport systems (such as London's open bus data system) ■ other opportunities that generically future proofs the Island ■ biometric sensor network (improve responses to patients' conditions) ■ IoT community wellness ■ smart bus stops ■ IoT bike sharing schemes	■ implementing "Smart City" solutions can generate cost savings for the local government and improved connected services for the Islanders and visitors ■ being a Government that adopts "Smart City" related solutions will likely attract business that wish to experiment with the technology implementation or with applications of the data generated ■ technology experimentation is facilitated by the fewer social layers present as compared to other jurisdictions, facilitating with technology experimentation (such as less time dealing with unbanked population, individuals with no internet access or smartphone access and so on) ■ improvements to the implemented technology can be developed and tested locally thus making it more "export ready" ■ good quality Island wide connectivity also facilitates the adoption of such technologies

4 Digital opportunities
Focusing on the short term inward investment strategy

4.3 IoT

IoT – Star opportunities (cont…)

IoT is one area where the development of hardware and software can take place simultaneously. The ability to test and develop IoT locally, will extend to IoT on an independent, connected and conflict basis. For example in MedTech applications it would be possible to test a number of IoT in a hospital, home and surgery environment and understand any interference aspects that result, as well as to develop the software and data streams.

Having a developed IoT environment, such as a dynamic traffic management system, can also enable the experimentation with other types of technologies, such as testing of autonomous vehicles or variations on the connected vehicle. Subsequently those technologies can address other local challenges such as the mobility needs for the elderly.

It shall be noted that some companies may be willing to test different technologies locally (in order to improve their overall product quality), without extra cost to the SOJ, if provided access to some basic services (such as access to data, authorisation to tap into different systems or nodes and so on).

Interoperability standards

In order to attract innovative companies and catalyse innovation it is advisable to ensure "open standards" usage is encouraged (such as the ones promoted by HyperCat for IoT solutions). Open standards will ensure that no one company "owns the key" to a technology but other companies can potentially improve the technology if needed. This is critical in ensuring interoperability between different hardware devices and/or software applications. The interoperability standards should provide guidelines on what open standards to be used and how to secure them.

As a discrete example in order to establish a competitive research and development environment for IoT a clear framework for technology procurement, accessing data, data usability and user design (to facilitate the collection of data) should exist.

4 Digital opportunities

Focusing on the short term inward investment strategy

4.4 MedTech

MedTech – Star opportunities

Specific	Why star opportunity?
MedTech ■ health and social care integration ■ data analytics ■ hospital technology ■ inclusive tech (digital access for the impaired)	■ natural fit for Jersey due to the presence of a local self contained medical system, boasting plans to build a "future hospital". This could be further enhanced by the development of an adjacent innovation lab ■ Jersey is not part of the NHS spine and therefore not constrained by NHS authority to experiment with such technologies ■ Jersey has its own co-payment system enabling experimentation to determine behaviour, outcomes and revenue ■ typically western demographics and consequently medical conditions ■ an established working group promoting this industry (Medtech.je) ■ international players interested in experimenting in this domain
■ health and wellness apps ■ home health monitoring ■ preventive monitoring and prompting	Jersey is an attractive place to experiment and develop new health technology given the population concerned with health that would welcome testing of such products to aid the development process. Improvement to data protection law will help capturing those opportunities

4 Digital opportunities
Focusing on the short term inward investment strategy

4.5 Other

Other – Star opportunities

Specific	Why star opportunity?
Block chain experimentation Various applications as appropriate: ■ registries of: local and classic car ownership, real estate, companies, share ownership, other luxury goods, trading/settlement of financial assets and remittance of funds, all on the block chain ■ eVoting systems (easing and securing the voting process by electronically enabling the voter to assign a "token" to the preferred voting option via an incorruptible system and also encouraging voting by a broader demographic) ■ contracts, ledgers, databases on the block chain	■ block chain technology is in its infancy but early estimations point to high growth potential due to its wide industry applicability (from financial, to Government, to legal to medical etc) ■ building a competitive advantage early on in this area is likely to act as a catalyst for attracting new business and developing exportable technology ■ finance applications are a natural place to start in terms of block chain experimentation followed by expansion into the governmental sector (eCitizen/eVoting) thus having the potential to address a wide array of opportunities ■ locally developed block chain solutions can be tested in Jersey's environment of a full scale working advanced economy thus making them more credible in terms of full scale applicability and effectively helping with marketing efforts ■ natural local benefit which correlates well to eGovernment's objectives

4 Digital opportunities
Focusing on the short term inward investment strategy

4.5 Other (cont.)

Other – For the back burner

Specific	Why for the back burner?
Data Storage ■ data storage (targeted) **Data Analytics** ■ specialised data capture and standardisation ■ prescriptive analytics ■ advanced analytics with self-service delivery ■ content analytics	■ data storage requires a high level of energy security which can be difficult to provide on the Island with only one generator provider ■ high connectivity costs ■ limited availability of big data and limited requirement for analytics compared to jurisdictions with a scalable environment of large businesses that may require such services once developed ■ lack of available data scientists in Jersey
Educational technologies development ■ eLearning platforms ■ eLearning content creation	■ high hosting and content streaming costs limit demand for such services – alternate locations are less expensive and thus more attractive ■ eLearning content creation has some merit and can be successfully achieved if targeted on the correct niche. However, Jersey does not have any establishments that would naturally lend themselves to such creation
Applications/software development ■ specific application development (such as: natural history, ecology or farming) ■ various apps for FS customers	■ limited potential, may work in some niche cases but unlikely that a significant amount of jobs will be created/attracted locally. Also the product exportability may be limited due to its tailoring on the local industry. No real reason why business may wish to relocate here to develop this as opposed to other areas
■ connected home	■ low diversity of urban/rural landscape to experiment with. Some software applications could be developed locally or specifically for the local environment/housing situation but probably not significant enough to create meaningful impact in the wider economy
■ software-defined anything, biometric authentication,	■ Jersey does not have a clear advantage in any of those domains (except in test bed context), some applications may be successfully developed in some niche cases but it is unlikely that this will create a meaningful impact in the wider economy
MarineTech: ■ digital underwater cartography	■ builds on Jersey's geographic position, ownership of the sea bed rights, reduced pollution and low sea traffic ■ not a "star" since the sector is niche with high development costs
eGaming	■ key eGaming players have established structures in other jurisdictions making them unlikely to relocate ■ Jersey is late to eGaming and consequently is not as attractive as other similar jurisdictions with an established eGaming sector (such as the Isle of Man, Malta and so on) ■ the market has reached maturity and no consolidation is currently taking place or likely to take place in the near future ■ the local regulator and employees have limited experience and skills in eGaming therefore there is a nervousness among decision makers on this topic ■ potential reputational concerns around Jersey being recognised as an eGaming location can act as a detractor for other business (operating in areas such as MedTech, FinTech, IoT and so on) also eGaming has a somewhat negative perception within the local community

4 Digital opportunities
Focusing on the short term inward investment strategy

4.5 Other (cont.)

Other – Don't actively pursue

Specific	Why don't actively pursue?
MedTech technology development ■ big data and analytics ■ smart advisors	■ no real jurisdictional advantage to developing software in Jersey as opposed to lower cost jurisdictions. However, less complex MedTech developments can be successfully pursued (flagged in star opportunities)
Other ■ smart workplace ■ citizen data science ■ micro data centres	■ no real jurisdictional advantage to developing software in Jersey as opposed to lower cost jurisdictions
■ safe harbour jurisdiction ■ Jersey as a data jurisdiction of choice	■ elevated risk of international backslash and adverse reputational issues ■ Jersey has high connectivity costs and currently does not have an alternative reliable power source ■ the financial gain for the Island will be low since storing specific data will require only a few local employees

5 Next steps

1. Establish working groups to develop star opportunities and address environmental layers

We recommend DJL member working groups are established to progress research and development of the star opportunities, namely FinTech, MedTech, IOT/testbed and Block chain.

A MedTech group is already established (Medtech.je) and during our research we identified the following benefits that have been realised so far:

- establishing a working group shines a spotlight on the industry, uncovering and bringing together pockets of activity under one umbrella
- members have a vested interest in the success of the group and are committed and motivated to drive it
- members recognise the value in promoting the broader offering as this presents greater leverage
- the community environment encourages idea generation, innovation and sharing of leads and contacts

Each group should be made up of industry representatives who bring a specific skillset or background knowledge to compliment the work of the group. DJL will need to support the development of these groups and should identify any challenges upfront that may inhibit their development and seek to address these immediately. For instance during our research we identified a need for greater education about the Jersey finance industry and the specific areas of functions which are performed to set aside wider misconceptions. If steps are taken to address misconceptions that Fintech is solely about disruption and instead it is positioned as essential to protect the finance industry then we believe uptake and interest will increase.

We believe the environmental layers (Cyber Security, Data and IP) also need to be developed and DJL should ensure progress is made in these areas by establishing and driving formal dialogue between industry and government and encouraging collaboration between the two on these topics.

Agreed actions/initiatives and targets should be transparent to the wider community. We believe concerted effort on these areas through a succession of meetings in early 2016 could yield early results.

The precise needs of each working group will vary somewhat, however, we believe that the activities highlighted above will remain broadly the same. In particular, it should be recognised that informal and formal collaboration at this level (and with others) need not prevent later specialisation and competition. Evidence suggests that such horizontal networks are key to the success of technology economies as opposed to vertical networks centred around particular industries or companies.

DJL must recognise that a history of disjointed delivery has dented trust with those close to the technology industry. DJL through its efforts, needs to rebuild this trust by working in close partnership with the various working groups.

Finally it has been noted in some discussions that the name Digital Jersey may itself not be helpful in off-island promotion and using brands such as Fintech.je and Medtech.je etc. may assist in projecting a more tangible and understandable message.

2. Position DJL as facilitator

Medtech.je appears to already be following the above model in Jersey and is already building Jersey brand awareness off-Island. To maximise opportunities that arise the community needs DJL to facilitate the following:

- engage with ministers to encourage greater presence with potential clients and business development leads
- handle business contacts sensitively by following up on all visits and maintaining speed and momentum
- prepare and provide detailed information to business contacts on the services and expertise on offer locally
- host user groups to discuss problems and potential projects e.g. encourage sharing of HSSD projects and bring HSSD professionals, developers and analysts to develop technical solutions
- provide administrative and financial support for on and off Island events and initiatives e.g. exhibitions, dining, visitors etc.
- ensure that a consistent market branding is established by the relevant group. For example one branding approach may be: "Driving improved health outcomes for Islanders by delivering health service efficiencies and integration, whilst simultaneously providing economic opportunities through the use of Island tested technology-enabled solutions"

5 / **Next steps**

3. DJL to resolve cross-cutting concerns

DJL will need to address those cross-cutting concerns identified in Section 6 *Cross-cutting recommendations.* To the extent not already covered by the action assigned to it in the **Jersey Innovation Review** action plan.

6 Cross-cutting recommendations
For enabling digital innovation in Jersey

During the course of our work we identified a number of cross-cutting concerns which we have captured below together with suggested timeframes to implement recommended solutions. Whilst we acknowledge that some of these points have been raised previously, we cannot emphasise enough how important it is that they are addressed, if these opportunities are to succeed. These actions should be progressed concurrently with the recommendations from the **Jersey Innovation Review**.

Theme	Recommendation	Time frame
States of Jersey Commitment	**Culture of risk taking** Many of the opportunities identified will require significant government support and commitment. This will range from being personally accessible and available to new Island entrants, through to releasing data sets to enable "Jersey as a Test bed" opportunities. In addition, culturally the SOJ will need to embrace more of a risk taking and innovative culture. We would recommend that this is explicitly specified in the proposed Chief Ministers 'Digital Framework for Jersey' document which we understand is currently being prepared. This framework will be invaluable in providing direction and guidance to other agencies that will assist DJL in creating the necessary environment. **Culture of rapid action** A number of opportunities in this report will have a much greater chance of success if the SOJ ensure that matters such as a digital Citizen ID, Digital Companies Registry and the SOJ cyber security initiatives are supported financially and politically. We understand that all of these are moving ahead currently, but greater momentum will benefit all parties. **Culture of innovation** The SOJ needs to match risk taking with innovation and embrace the exploration of new ideas and opportunities. This will include openly publishing challenges, problems and issues that the SOJ face and wish to overcome and require innovators' assistance. This could be in departments ranging from HSSD to TTS. They then need to execute rapidly and be prepared to fail fast and re-start.	Immediately
Single point of entry for new digital business / innovator on boarding	An individual or business considering Jersey as a potential site for establishment or relocation of their business needs a single digital/virtual and real point of contact. There should be a clear, well-advertised web page giving pertinent and relevant information to such individuals together with contact details of key individuals/entities.. This page should detail key matters from taxation through to schooling, bandwidth etc. and be updated on a regular basis. When a business or individual makes contact with the relevant DJL contact person there should then be a streamlined "concierge type" service to ensure that liaison with the various agencies is streamlined, professional and rapid. The process should be continually refined based on specific feedback. In order to achieve this various governmental agencies should work together as appropriate. In addition where such potential new entrants have a specific need or specialism, such as health, relevant ministers and officers from HSSD, parties from primary and tertiary care should be involved and briefed accordingly. DJL should also ensure they have access to wider databases enabling them to refer individuals to suitable office or other space etc.	0 – 3 months

6 Cross-cutting recommendations
For enabling digital innovation in Jersey

Theme	Recommendation	Timeframe
Off-Island networks	DJL should be forging partnerships with other off-Island networks (such as Digital Catapult, Tech UK and Tech City). Those partnerships should not be based just in the UK but across many relevant jurisdictions.	3 - 6 months
Cultivate culture of innovation (general)	In order the attract new businesses and develop current ones a culture of innovation needs to be nurtured: ■ set-up a hub that links technological savvy people, entrepreneurs, collaborators, mentors and investors ■ continue to highlight the link between the digital and other sectors (such as Financial or creative) by organising various events ■ organise events/places for digital entrepreneurs to meet, collaborate and exchange ideas in a safe environment ■ set-up open device lab which will allow developers to test their latest apps ■ negotiate dedicated internet connections for tech start-ups (with fixed IP) at a preferential price ■ create a fund or link to Venture Capitalists ("VCs") to source funding for start-ups	1 year
Licencing of the digital talent	Population Office appears to evaluate digital businesses and digital start-ups in a similar way as a mature business operating in an established sector. This results in granting very few licences to the requesting digital companies, thus effectively undermining their competeveness. There is a need to adapt and streamline the licence granting process towards digital business and digital start-ups in a way in which this encourages and fosters sustainable growth, otherwise digital start-ups will be significantly deterred. DJL should bring together representatives from the Population Office and tech community to review the licensing granting process.	3 - 6 months
Skills	Developing technical skills and capabilities is critical for feeding the local digital economy and responsibility for this should sit within external organisations such as the Education Department or Skills Jersey where expertise in skills development exists. This is not only the right home for skill development but also sends the message that requirements for technical skills will increase and play a more fundamental role in the future. Skills Jersey and Careers Jersey should understand the technical skills and career landscape, developing general and specialist skill development opportunities to suit the needs of the technology industry and other industries. DJL should play the role of industry representative – engaging with the tech industry and communicating requirements to Skills Jersey and Careers Jersey, and continuing facilitating technology specific initiatives such as the Coding Program. Also a clear strategy on enabling effective mentorship and also incentivising digital leaders to take on mentorship roles should be formulated and pursued. Access to mentors should be wider than just technologies based mentoring.	within 3 months and then ongoing

6 Cross-cutting recommendations
For enabling digital innovation in Jersey

Theme	Recommendation	Timeframe
DJL funding	DJL is the equivalent for the digital sector of JFL is for the financial sector. Given this significant strategic task DJL needs to have certainty over its funding for at least a 3 year period to recruit and retain the best talent as well as being able to plan and invest in its business development initiatives. Such funding also needs to be commensurate to the challenge faced. DJL funding is currently a small fraction of that received by JFL and without greater funding, it's unlikely that many of the opportunities identified in this paper could be fully explored and landed. We recommend that DJL prepare a detailed funding plan for three years and submit requests to the SOJ.	3 - 6 months
Link funding and digital ideas	DJL should strive to encourage and facilitate the link between various funding sources and local digital ideas. Increasing the likelihood for a digital idea to receive funding will in turn create local start-ups and will support local business. This can be done in various ways including: ■ identification of HNWIs interested in investing in tech start-ups followed by pitching events (for those digital idea) ■ encourage banks to finance start-ups ■ promote alternative funding platform methods such as crowd-funding platforms ■ work with the government on developing relevant incentive schemes to for individuals/entities that fund start-ups (similar to SEIS scheme in the UK)	3 - 6 months
Digital Challenges	To broadcast the Jersey proposition DJL will need to engage in a focused and compelling off-Island business development and marketing campaign. This should include the execution of various challenges which will assist in meeting Island or local business problems. 'Rewards' for successful ideas should be made available, for example, access to key data sets to further develop ideas. Such challenges could be run globally.	3 - 6 months
Data legislation	DJL needs to focus effort on mapping out what the digital economy may look like for the next decade and work with industry, the data commissioner and policy advisors to shape the future data protection legislation coming into force at the end of 2017 to ensure that future digital initiatives are not blocked due to data protection legislation. Particular focus should be placed on assessing the need for specific legislation on open data. The new legislation should make sure that it doesn't prevent innovation before the specific digital opportunity is explored and understood. The new law should be principles based, having innovation at its heart and ensuring that it avoids prescriptive courses of action as far as possible (since this has the potential to create future barriers to innovation). We were made aware that Tech UK is currently being consulted by the UK government on a similar exercise. In order to gather meaningful inputs in a timely manner, DJL should consult with Tech UK on this topic.	3 - 6 months

6 Cross-cutting recommendations
For enabling digital innovation in Jersey

Theme	Recommendation	Timeframe
Data collection framework	The way in which data is collected, stored and protected, can make a significant difference in terms of the public's willingness to share data and also the quality of data that is being shared. It is important to inform the data providers (such as patients in a MedTech environment) of the type of data that is being collected, the time it will be stored and for what specific purposes is this data collected. During the collection process the data collectors (for example nurses in a MedTech environment) must be able to address concerns around data privacy and security. Also, learning from previous NHS test bed experiment results, there must be a clear and consistent terminology used by every data collector in every place data is collected. For example every doctor should explain the need for data gathering, in the same way in every clinic. It will be important to have a shared terminology ensuring common understanding between the specialist collecting the data (for example nurses in a MedTech environment) and the technological specialist (making the data request).	6 - 12 months
IP	Greater innovation will lead to the potential for IP to be developed in the Island and possibly registered here. This should be distinguished from the managing of patents etc. from here. Jersey needs to understand what its proposition is in this area is and how it fits in with the current taxation model. These matters are complex and require a separate working group to ensure they are fully explained so that DJL and other agencies understand what is possible so that potential new entrants are informed accordingly.	1 year
Regulatory sandboxes	The JFSC have noted that they are very open to helping drive forward new digital initiatives. They want to do this in a specific manner with specific ideas. DJL should work with the JFSC and industry to establish and publicise this to ensure the toolkit is populated.	3 months
Connectivity cost	Various local business owners brought to our attention that the internet connectivity price is expensive when compared with other locations in which they are operating in and this is a cross-cutting concern. Considering the off-island capacity, preferential arrangements could be awarded to start-ups and small technology companies in order to help facilitate their growth. The types of preferential connectivity arrangements should be determined by DJL, but supported by the SOJ and its currently 100% owned subsidiary, JT. It is noted that JT have made such offers in the past. IoT is dependent on connectivity, especially intra-island connectivity, thus the rapid completion of the Gigabyte Jersey project will assist with those efforts. The actions arising from the DJL's paper "Enabling Effective Data Connectivity" issued in March 2014 should be reviewed.	0 - 3 months

A1 Research analytics

A1 Research Analytics

Level 1	Level 2	Level 3	Can Jersey accommodate it? (yes/no)	Preliminary success likelihood (1 to 10)	Preliminary qualitative score (1 to 10)	Barriers present (low to high)	The company is more innovative or more established?	Combined success likelihood (50% Success factors and 50% Qualitative)	Barriers present (low to high)	Combined assessment	Technology description
Benchmark	a high street bank		yes	8.5	8.5	Low	established	8.5	Low	1 - Star opportunity	
	an international tech giant (such as: Apple,		yes	8.65	5.5	Low	established	7.075	Low	2 - Potential candidate	
	a high potential FinTech startup		yes	6.55	10	Low	innovative	8.275	Low	1 - Star opportunity	
FinTech	**Adjacencies**	bespoke business process	yes	6	10	Low	innovative	8	Low	1 - Star opportunity	cloud based administration of funds and trust business, aim of reducing administrating time for most the previous manual / paper based process
		compliance automation	yes	5.75	10	Medium	innovative	7.875	Medium	1 - Star opportunity	automation of paper based / manual work in the compliance process (such as KYC, CDD or EDD procedures)
		advanced risk management systems	yes	5.75	10	Medium	innovative	7.875	Medium	1 - Star opportunity	automation of paper based / manual work in the risk management process (client scoring, trust relationship evaluations, and so on)
		wealth management platforms	yes	5.45	10	Medium	established	7.725	Medium	1 - Star opportunity	platform that provides wealth management services especially to HNWI
	RegTech	varoius opportunities (such as JFSC APIs)	yes	5.35	10	Medium	innovative	7.675	Medium	1 - Star opportunity	various opportunities (such as JFSC API databases being used to streamline processes)
	Cryptocurrency	virtual currencies payments and related services	yes	6.5	10	High	innovative	8.25	High	2 - Potential candidate	a virtual currency or virtual money has been defined in 2012 by the European Central Bank as "a type of unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific virtual community."
		other virtual currencies technology (custodian, reporting, other)	yes	6.5	10	High	innovative	8.25	High	2 - Potential candidate	a virtual currency or virtual money has been defined in 2012 by the European Central Bank as "a type of unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific virtual community."
		cryptocurrencyexchange	yes	6.5	10	High	innovative	8.25	High	2 - Potential candidate	exchanges where you can buy and sell cryptocurrency for other digital or fiat currencies
	Process improvement	fraud detection / forensic services	yes	6	10	High	established	8	High	2 - Potential candidate	data analysis techniques for fraud detection (both supervised and unsupervised)
		big data analytics	yes	6.05	10	High	established	8.025	High	2 - Potential candidate	big data analytics is applied to data sets so large or complex that traditional data processing applications are inadequate. Challenges include analysis, capture, data curation, search, sharing, storage, transfer, visualization, and information privacy.
		predictive analytics	yes	5.8	10	High	established	7.9	High	2 - Potential candidate	predictive analytics encompasses a variety of statistical techniques from predictive modeling, machine learning, and data mining that analyze current and historical facts to make predictions about future, or otherwise unknown, events.
	Cyber security	cyber security solution development	yes	6	8.5	Medium	established	7.25	Medium	2 - Potential candidate	developing cyber security applications and training
	Transactional	Payment platforms	yes	4.95	7	Medium	established	5.975	Medium	3 - For the backburner	the architecture is represented by a layer – or overlay – that resides on top of multiple disparate systems and provides for two-way communications between the payment system and the PaaS.
		digital and mobile payments	yes	4.4	7	Low	established	5.7	Low	3 - For the backburner	mobile payment, also referred to as mobile money or mobile money transfer, generally refers to payment services operated under financial regulation and performed from or via a device.
		money remittance (banking and non banking)	yes	4.2	7	Low	established	5.6	Low	3 - For the backburner	a remittance is a transfer of money by a foreign individual to the individual's home country
		dynamic currency conversion	yes	5.75	8.5	High	innovative	7.125	High	3 - For the backburner	dynamic currency conversion (DCC) or cardholder preferred currency (CPC) is a financial service in which credit card holders, when making a payment in a foreign country, have the cost of a transaction converted to their home currency at the point of sale.
		clearing and settling	yes	4.9	7	Low	established	5.95	Low	3 - For the backburner	clearing denotes all activities from the time a commitment is made for a transaction until it is settled. Clearing of payments is necessary to turn the promise of payment (for example, in the form of a cheque or electronic payment request) into actual movement of money from one bank to another
		high frequency trading	yes	5.45	8.5	High	innovative	6.975	High	3 - For the backburner	high frequency trading is an automated trading platform used by large investment banks, hedge funds and institutional investors which utilizes powerful computers to transact a large number of orders at extremely high speeds
		e-wallets	yes	5.1	8.5	High	innovative	6.8	High	3 - For the backburner	a digital wallet refers to an electronic device that allows an individual to make electronic commerce transactions. This can include purchasing items on-line with a computer or using a smartphone to purchase something at a store.
		forex	yes	4.45	7	Low	established	5.725	Low	3 - For the backburner	this includes all aspects of buying, selling and exchanging currencies at current or determined prices. The foreign exchange market (forex, FX, or currency market) is a global decentralized market for the trading of currencies.
	customer / operations	card issuing	yes	5.1	7	High	established	6.05	High	3 - For the backburner	technical hardware and accompany software for bank card issuing
		pos hardware and software	yes	5	7	High	established	6	High	3 - For the backburner	technical hardware and accompany software related to pos
		funding	yes	5.7	5.5	High	established	5.6	High	4 - Do not actively pursue	alternative funding platforms similar in scope and nature to crowd funding platforms
		investment platforms (crowdfunding)	yes	5.45	5.5	High	established	5.475	High	4 - Do not actively pursue	crowd funding is a form of alternative finance, which has emerged outside of the traditional financial system. The platform is the back end of the crow funding concept
	RegTech	A.I. for finance and legal industry	yes	5.2	5.5	High	innovative	5.35	High	4 - Do not actively pursue	development of artificial intelligence / cognitive learning / machine learning to develop solutions for the finance or legal industry (such as automatic document reading and interpretation)
Testbed	**Fintech**	FinTech ecosystem experimentation	yes	6.75	8.5	Medium	established	7.625	Medium	1 - Star opportunity	using Jersey as a test bed for FinTech (such as to experiment in a closed environment with virtual currencies payment)
	AgriTech	sustainable farming	yes	6.15	8.5	Medium	established	7.325	Medium	1 - Star opportunity	using Jersey as a testbed for the application/development of new technology to improve sustainable farming by collecting data/information, analysing and utilising for a beneficial end goal
		vertical farming (intensive)	yes	6.15	8.5	Medium	established	7.325	Medium	1 - Star opportunity	using Jersey as a testbed for the application/development of new technology on vertical farming in Jersey
		agri innovation	yes	6.15	8.5	Medium	established	7.325	Medium	1 - Star opportunity	using Jersey as a testbed for the application/development of new technology to test general agricultural processes
		genetically modified crops	yes	4.35	7	High	established	5.675	High	4 - Do not actively pursue	using Jersey as a testbed for the application/development of new technology relating to genetically modified crops
		general agri tech	yes	4.35	5.5	Medium	established	4.925	Medium	4 - Do not actively pursue	collating general agri data/information, analysing and utilising for a beneficial end goal
		pollution control	yes	4.95	5.5	High	innovative	5.225	High	4 - Do not actively pursue	using Jersey as a testbed for the application/development of new technology to test / monitor / control pollution
	MedTech	new hospital infrastructure / adjacent innovation lab	yes	6.75	8.5	Medium	established	7.625	Medium	1 - Star opportunity	building a new innovation lab next to the hospital or using the new hospital grounds as a testbed for MedTech
	EduTech	innovative educational delivery systems	yes	5.8	7	Medium	innovative	6.4	Medium	2 - Potential candidate	using Jersey as a testbed for the application/development of new technology to provide innovative educational delivery systems
		mixed remote / on site education experiments	yes	6.3	8.5	Medium	innovative	7.4	Medium	2 - Potential candidate	using Jersey as a testbed for the application/development of new technology to utilise in education experimenting with educational delivery systems
		virtual / remote universities	yes	5.8	7	Medium	innovative	6.4	Medium	2 - Potential candidate	using Jersey as a testbed for the application/development of new technology to provide virtual / remote universities
	CleanTech	general clean tech	yes	6.15	8.5	Medium	established	7.325	Medium	2 - Potential candidate	technology developed to focuses on clean energy / water with an aim to reducing biological footprint in processes involving these utilities
		water and tidal energy generation	yes	6.05	8.5	Medium	innovative	7.275	Medium	2 - Potential candidate	Using Jersey as a testbed for the application/development of new technology to test tidal energy in Jersey
IoT	**IoT**	IoT test bed and some permanent solutions	yes	6.2	8.5	Medium	innovative	7.35	Medium	1 - Star opportunity	iot is the network of physical objects embedded with sensors and technology enabling these objects to collect and exchange data
		smart city / future city (with a variety of applications)	yes	6.15	8.5	Medium	innovative	7.325	Medium	1 - Star opportunity	the use of digital tech to enhance the quality of services and reduce costs / resources. Enables engagement with citizens to be more effective
		smart gov (such as egov, or more broadly smart jersey)	yes	6.35	8.5	Medium	innovative	7.425	Medium	1 - Star opportunity	Using Jersey as a testbed for the application/development of new smart government technology
MedTech	health and social care integration		yes	6.75	8.5	Medium	established	7.625	Medium	1 - Star opportunity	testing the full digital integration of health and social care
	data analytics		yes	6.25	8.5	Medium	established	7.375	Medium	1 - Star opportunity	using technology to identify patterns in big data and other useful information to be used to make better decisions in area of health
	hospital technology		yes	6.35	8.5	Medium	innovative	7.425	Medium	1 - Star opportunity	improvement to hospital tech
	inclusive tech (digital access for the impaired)		yes	6.3	8.5	Low	established	7.4	Low	1 - Star opportunity	technology that enables disabled people, their families, carers and friends access to technology opportunities
	health and wellness apps		yes	5.95	10	Medium	innovative	7.975	Medium	1 - Star opportunity	various applications/devices that can measure/monitor/analyse a number of personal health factors e.g. via wearable sensors
	home health monitoring		yes	6.35	8.5	Medium	innovative	7.425	Medium	1 - Star opportunity	technology that allows people to monitor their own health at home
	preventive monitoring and prompting		yes	6	10	Low	innovative	8	Low	1 - Star opportunity	specific digital monitoring systems
Other	**Block chain**	- block chain registries / - block chain based voting systems / - contracts, ledgers, databases on the block chain	yes	7.45	8.5	Medium	innovative	7.975	Medium	1 - Star opportunity	development of block chain tech (insurance contracts on block chain, registry trading and settlement of financial assets on block chain, remittance of funds on block chain, currency as a content, digital id, block chain analytics). registries of: local and classic car ownership, real estate, companies, share ownership, other luxury goods, trading / settlement of financial assets and remittance of funds, all on the block chain; ;eVoting systems; contracts, ledgers, databases on the block chain
	Data storage	storage (targeted)	yes	4.45	7	Low	established	5.725	Low	3 - For the backburner	Data storage technology and locations in Jersey
	Data analytics	specialised data capture and standardisation	yes	4.85	7	Low	innovative	5.925	Low	3 - For the backburner	research and development of technology that explores methods for capturing data from unstructured documents
		prescriptive analytics	yes	6.15	5.5	Medium	innovative	5.825	Medium	3 - For the backburner	use of prescriptive analytics technology (synthesis of big data to make predictions in which to base decisions) in relation to businesses and government
		advanced analytics with self-service delivery	yes	6.45	5.5	Medium	innovative	5.975	Medium	3 - For the backburner	technology that using various analytical procedures to forecasting future events and behaviors
		content analytics	yes	5.85	5.5	Medium	innovative	5.675	Medium	3 - For the backburner	digital content analytics (allowing fast reading & error detection in various documents)
	Educational technologies development	eLearning content creation	yes	4.8	7	Medium	established	5.9	Medium	3 - For the backburner	creation of eLearning content
		eLearning services platforms	yes	4.8	7	Medium	established	5.9	Medium	3 - For the backburner	research and development of e learning services platforms
	Application / software development	specific application development (natural history / ecology / farming)	yes	4.95	5.5	Low	innovative	5.225	Low	3 - For the backburner	research and development of natural history / ecology / farming applications in Jersey
		various apps for fs customers	yes	4.9	7	Low	innovative	5.95	Low	3 - For the backburner	various application for financial services customers
	connected home		yes	5	7	Low	innovative	6	Low	3 - For the backburner	ability to control connected devices at home through a central device
	software-defined anything, biometric authentication		yes	6.75	5.5	High	innovative	6.125	High	3 - For the backburner	technology that makes software more in command of multi-piece hardware systems, systems relying on biological characteristics of individuals for secure access
	MarineTech	digital underwater cartography	yes	4.8	7	Low	innovative	5.9	Low	3 - For the backburner	research and development of technology allows mapping of underwater area
	eGaming		yes	5.7	5.5	Low	established	5.6	Low	3 - For the backburner	eGaming technology
	MedTech Tech development	big data and analytics	yes	5.25	4	Medium	established	4.625	Medium	4 - Do not actively pursue	using technology to identify patterns in big data and other useful information to be used to make better decisions in the medical domain
		smart advisors (e.g.. Ibm Watson and apple watch)	yes	6.35	4	High	innovative	5.175	High	4 - Do not actively pursue	technology that provides advice to the customer (pacient)
	Other	smart workspace	yes	5.5	4	Medium	innovative	4.75	Medium	4 - Do not actively pursue	technology that allows staff to work at a workspace that is not in the office, allowing flexibility of workplace
		citizen data science	yes	5.6	4	Low	innovative	4.8	Low	4 - Do not actively pursue	science data research conducted, in whole or in part, by amateur or nonprofessional scientists
		micro data centers	yes	5.2	4	Medium	innovative	4.6	Medium	4 - Do not actively pursue	Smaller datacentres designed to solve different problems from the traditional data centre facility
		safe harbour jurisdiction	yes	3.85	7	High	innovative	5.425	High	4 - Do not actively pursue	Jersey as a data storage location that allows compliance with privacy laws worldwide

A1 Research Analytics

Opportunity			Can Jersey accommodate it?	Preliminary success likelihood (1 to 10)	Preliminary qualitative score (1 to 10)	Barriers present (low to high)	The company is more innovative of more established ?	Combined success likelihood (50% Success factors and 50% Qualitative)	Barriers present (low to high)	Combined assessment	Assessment — Technology description
Level 1	Level 2	Level 3									
		Jersey as the data jurisdiction of choice (for specific data)	yes	4.15	5.5	Medium	established	4.825	Medium	4 - Do not actively pursue	
	Cyber Security	on island testing capability	no								using the island to test various elements of cyber security
		all fs employees being trained	no								training financial services employees on various elements of cyber security
		on island standard for encrypted email	no								producing an on island standard for encrypted email to drive a common security standard for email
		meeting global skills demands (cyber)	no								
		digital skills development faculty	no								
	Automotive	autonomous vehicles	no								vehicles which can drive themselves
		telematics	no								Technology which merges telecommunications and infomatics i.e. GPS systems and navigation systems. Devices brought together by data and wireless communication
		robotics	no								use of robotics to automate processes to free up manpower and drive efficiencies and innovation
	Consumer goods	quantified self	no								technology that allows data acquisition on aspects of daily lives of people via personal input
		wearable	no								Wearable technological devices that serve specific purposes for the consumer
		cloud computing	no								Using a network of remote servers hosted on the Internet to store, manage, and process data
		3d printing consumer	no								technology that allow the making of three dimensional solid objects from a digital file for consumers use
		big data and analytics	no								using technology to identify patterns in big data and other useful information to be used to make better decisions in relation to consumer goods
		robotics	no								use of robotics for consumer market to be used in every day lives
		augmented reality	no								use of computer generated input such as sound / video / GPS etc... to augment a real environment
		location based	no								technology for consumer market whereby computer program-level services use location data to control certain features
		digital dexterity	no								Technology that uses strategy to attract the optimum mix of employees based on ability and social practice
		people-literate technology	no								mixture of technologies that offer more humane behaviors and interfaces towards autonomous companies
		natural-language question answering	no								Systems that are designed to answer questions that are posed in natural language
		affective computing	no								Development of systems that can recognize, interpret, process, and simulate human affects
		gesture control	no								Technology that can recognise human gestures
		virtual reality	no								Simulation of physical presence in the real world using a computer-simulated environment
	Power and Utilities	smart grid	no								Electrical grid using smart measures such as smart meters, smart appliances, renewable energy resources and energy efficiency resources
		telematics / scada	no								A supervisory control and data acquisition system sends signals over communication channels to provide control of remote equipment.
	Media and Entertainment	speech analytics	no								Analysing recorded calls and gathering information
		big data and analytics	no								big data analytics is applied to data sets so large or complex that traditional data processing applications are inadequate. Challenges include analysis, capture, data curation, search, sharing, storage, transfer, visualization, and information privacy.
		location based	no								Delivering content to users of mobile electronic devices dependent upon their location
		augmented reality	no								use of computer generated input such as sound / video / GPS etc... to augment a real environment
	Business and Government		no								
		saas (software as a service)	no								software licensing and delivery model in which software is licensed on a subscription basis and is centrally hosted
		software-defined security	no								Software that introduces simplicity to the world of network security
		bioacoustics sensing	no								Technology that involves a combination of biology and acoustics, which includes ultrasound and vibration
		smart dust	no								A system of microelectromechanical systems (MEMS) such as sensors, robots, or other devices, that can detect, for example, light, temperature, vibration, magnetism, or chemicals
		virtual personal assistants	no								Technology that can allow assistants to work from a remote location
		quantum computing	no								A computer that uses quibits to store information
		brain-computer interface	no								A connection between a brain and a device that allows the brain to direct some external activity, such as control of a cursor or a prosthetic limb
		human augmentation	no								technologies that enhance human productivity or capability, or that somehow add to the human body
		volumetric displays	no								a graphic display device that forms a visual representation of an object in three physical dimensions
		3d industrial printing	no								technology that allow the making of three dimensional solid objects from a digital file for industrial purposes
		contactless technology roll out	no								contactless technology allows communication between devices without contact such as smart cards that use chips and induction technology
		near field communications	no								allows devices to communicate within close proximity of one another
		smart robots	no								robotic systems with artificial intelligence designed to carry out their operation without direct human intervention
		iot platform	no								a platform where internet of things (network of physical objects) can communicate with one another for a specified purpose
		biochips	no								miniaturised laboratories that can perform a large number of simultaneous biochemical reactions
		smart advisors	no								technology that provides advice to the user
		speech to speech translation	no								Technology that translates speech from one language to another in near real time
		machine learning	no								Technology which explores the study and construction of algorithms that can learn from and make predictions on data
		hybrid cloud computing	no								integrated cloud service utilising both private and public clouds to perform distinct functions within the same organisation
		autonomous field vehicles	no								vehicles which can drive themselves
		3d scanners	no								A device that can scan a real world object or environment and collects data on its shape and appearance to bee used to make 3d models
		complex-event processing	no								Event processing that combines data from multiple sources and then identify meaningful events such as opportunities or threats
		consumer telematics	no								end-user-targeted vehicle-centric information and communication technologies and services
		data science	no								processes and systems to extract knowledge or insights from data in various forms
		gamification	no								application of elements of game playing such as a points scoring system and competitiveness to areas of business and government
		in-memory analytics	no								Technology that queries data when it resides in a computer's random access memory rather than a physical disk
		in-memory database management systems	no								database management system that primarily relies on main memory for computer data storage
		machine-to-machine communication services	no								used for automated data transmission and measurement between mechanical or electronic devices
		speech recognition	no								methodologies and technologies that enables the recognition and translation of spoken language
		wearable user interfaces	no								miniature electronic devices that are worn by the user
		preventive monitoring and prompting	no								
		robotics	no								
		nanotechnology	no								
		augmented reality	no								
		3d bioprinting	no								
		personal genomics	no								
		quantified self	no								
		health tech / connected health	no								
		gamification	no								

A2 **Acknowledgements**
"Thank you"

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Interviewees:

- Andrew Barette (Quadra)
- Andrew Carr (UK Digital Catapult)
- Charles Robertson (TechTribes)
- Chris Evans (Mox)
- Colin Gibaut (States of Jersey)
- Daniel Masters (Global Advisors)
- Danny Bannister (Total Solutions Group)
- Emma Martins (Information Commissioner)
- George Pearmain (States of Jersey)
- Graeme Miller (Jersey Telecom)
- Ian Webb (States of Jersey)
- Jessica Rushworth (UK Digital Catapult)
- Jon Day (Carpe Diem)
- Jos Creese (Eduserv)
- Julian Box (Calligo)
- Mark Loane (C5 Alliance)

- Mark Stuchfield (Jersey Telecom)
- Martin Magee (JEC)
- Mathew Palmer (Cyberclaria)
- Paul Young (IST)
- Phil Shaw (ThinkManagement)
- Philip Godley (Sanne Group)
- Ray Parker (4insight)
- Robbie Andrews (The Observatory)
- Roger Bisson
- Rus Newton (Global Advisors)
- Simon Boas (States of Jersey)
- Stephanie Peat (States of Jersey)
- Steve Moffatt (Applied Materials)
- Terry Cox (BootstrapJersey)
- Tom Cowshill (JFL)
- Vicky Milner (Callington Chambers)

KPMG's digital champions:

- Alwin Magimay (Head of Digital, UK)
- Tom Roberts (Director and COO of Digital, Analytics and Innovation at KPMG UK)
- Ian Pallori (Partner at KPMG Australia)
- Warren Mead (Global Head of Fintech, UK)

Local community collaborations:

- Fintech Friday organised workshop at KPMG (20 November 2015)
- DJL organised workshop at Digital Jersey (12 and 19 November 2015)
- Slack forum (ongoing)

Information sources/publications:

- Gartner's hype cycle for emerging technologies, 2015
- Gartner's answering data's 10 biggest vision and strategy questions
- Gartner's top 10 strategic predictions for 2015 and beyond: digital business is driving "big change"
- Gartner's hype cycle for 2015: five megatrends shift the computing landscape
- Gartner's the top 10 strategic technology trends for 2015
- Various 4Insight reports and output from the DJL TAG groups
- DJL report on seed capital
- DJL first report on the crypto currency working group
- Virgin media business and Oxford economics report "The UK's £92BN digital opportunity"
- Scotland's Digital Future "Emerging Findings – April 2013"
- The Economist's "The Trust machine" article (October 2015)
- UK national risk assessment of money laundering and terrorist financing (October 2015)

- Norden - Nordic Innovation article "Nordic Testbeds and Innovation Gateways"
- Microsoft report "Transforming Government"
- The time report "Grow Up Nation - The Israel internet industry 2014"
- Business Insider Intelligence article "The Internet of Things: 2015"
- KPMG's Technology outlook survey (June 2015)
- KPMG's Rise of the Digital Customer (May 2015)
- KPMG's The changing landscape of disruptive technologies
- Trust in Personal Data: A UK Review Digital Catapult
- www.iot-lab.info
- Bank of England article "Speech – Labour's Share"
- Deutsche Telecoms article "Connected Cities"
- 4insight R&K TAG paper "Competing Approaches"
- Silicon Beach article "Bournemouth: From retirement capital to digital beach – the story of Britain's fastest growing tech hub"

and other proprietary and publicly available sources

A3 **Glossary**

Abbreviation	Full Name
4G/5G	4th generation/5th generation wireless technology
AgriTech	Agricultural technology
API	Application program interface
CDD	Client due diligence
DJL	Digital Jersey Limited
EDD	Enhanced due diligence
EduTech	Educational technology
Fibre	Fibre optic broadband service
GVA	Gross value add
HNWI	High net worth individual
HSSD	Health and Social Services Department, Jersey
IoT	Internet of things
Jersey Innovation Review	Review conducted by Assistant Chief Minister Philip Ozouf and proposed by Tera Allas
IP	Intellectual property
JFL	Jersey Finance Limited
JFSC	Jersey Financial Services Commission
JT	JT Global
KYC	Know your client
MedTech	Medical technology
NHS	UK's National Health Service
P2P	Peer-to-peer
POS	Point of sale
RegTech	Regulatory technology
SeaTech	Sea technology
SOJ	States of Jersey
TTS	Transport and Technical Services department
VC	Venture Capital

A3 **Glossary**
Opportunities

Term	Definition
Big data and analytics	Using technology to identify patterns in big data and other useful information to be used to make better decisions
Biometric authentication	Systems relying on biological characteristics of individuals for secure access
Block chain	A distributed database that maintains a continuously growing list of transactional data records
Citizen data science	Science data research conducted, in whole or in part, by amateur or non-professional scientists
Cloud accounting	Accounting software held in the cloud
Compliance automation	A system which automates compliance functions of an organisation to drive efficiency
Connected home	Ability to control connected devices at home through a central device
Content analytics	Technology that applies business intelligence and business analytics practices to digital content in order to create useful information in which to base business decisions
Cryptocurrency exchange	Exchanges where you can buy and sell cryptocurrency
Digital underwater cartography	Technology that allow mapping of underwater area
eLearning platform	Electronic learning platform
E-wallet	An electronic device or software that allows an individual to make electronic commerce transactions
Home health monitoring	Technology that allows people to monitor their own health at home
P2P	A distributed application architecture that partitions tasks or workloads between peers
Predictive analytics	A variety of statistical techniques from predictive modelling, machine learning, and data mining that analyse current and historical facts to make predictions about future, or otherwise unknown, events.
Regulatory sandbox	Creating a 'safe space' in which businesses can test innovative products and services
Seed capital	Funding required to get a new venture started
Slack	Team collaboration digital tool offering chat rooms organised by topic as well as private groups and direct messaging development centres
Smart City	The use of digital technology in an environment such as a city to enhance the quality of services and reduce costs/resources, and enables engagement with citizens to be more effective
Smart Government	Using technology to create a smart government environment e.g. eGovernment
Smart workplace	Technology that allows staff to work at a workspace that is not in the office, allowing flexibility of workplace
TestBed	A platform for conducting rigorous, transparent, and replicable testing of scientific theories, computational tools and new technologies
Vertical farming	Practice of cultivating plant life within a skyscraper greenhouse or on vertically inclined surfaces
Virtual currencies	A type of unregulated digital money, which is issued and usually controlled by its developers and used and accepted among the members of a specific virtual community
Wealth management platforms	Platform that provides wealth management services particularly to Fiduciary and Fund industry clients in Jersey

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