Response to Draft Digital Policy Framework document

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Introduction

Please permit me to offer my feedback in support of the Digital Policy Framework activity.

Let me start by saying that I speak both from the perspective of a technology entrepreneur with 30 years of experience in the global industry, and as someone who voted with his feet to support the idea of creating a 'Digital Jersey' by relocating here in 2012 to help make this a reality. In that context, I hope that you will understand that my feedback is offered in the role of mentor and 'critical friend' rather than 'trolling JEP letter-writer'…

The inner workings of the industry at global scale are not always obvious to non-initiates and the practicalities of the IT service business in a small island means that the local fledgling industry provides an unrealistically distorted view of how things work elsewhere.

As a general comment, I'm pleased that we are now working together collaboratively as a community to create the policies we need in order to move forwards and I'm encouraged that over the past year we have started to orient more closely to the direction we need to move in to start to achieve our shared goals.

There are plenty of good and useful ideas in the draft policy framework, so I shall restrict my input to a few specific areas. I will frequently speak to the idea that some aspects of this are 'root causes' where specific activity will result in significant return upon investment, whilst other, perhaps more seemingly obvious activities are in fact just symptoms of the industry that happen by default if progress is made in root areas. The visible part of the industry is the very tip of the iceberg and much of what makes it work is hidden below the waterline, only visible to those with access. We can only get our iceberg out of the water if we focus our efforts on the most critical of the hidden elements.

We have some very talented, committed and brave Ministers in Jersey, but I hope I won't offend anyone by perhaps suggesting that we don't have very many who have worked first hand as entrepreneurs in the industry globally. As such, we must acknowledge the constraint that policy makers are forced to operate at second hand from the industry that we wish to encourage. As such, I hope that no one will mind if we occasionally point out misunderstanding that can have counterproductive outcomes if they are allowed to proliferate in public communication with industry natives.

Perhaps most amusingly, I would recommend that one of the first goals of any 'digital' policy framework should be to discourage the use of the word 'digital' in general. Nobody in the technology sector uses this term in the context, so it's one of those elements that rather marks Jersey out as an outsider rather than an experienced player. It's a habit that many governments have picked up, but it's a turn-off to people who we should be attracting.

'Technology' is an acceptable generic term and more specifically we want to encourage *the export of Intellectual Property of all forms from the island* – this should actively include content production using technology at all levels from 'pure tech' software and hardware manufacturing through to 'soft' areas like publishing, music and video production. If it has intrinsic value that can be sold overseas without physical transportation constraints, it is of benefit to our economy and our reputation.

It is critical that we focus our limited resources on activities that are root causes of economic growth in technology. It is very easy to become distracted into attempting to encourage things which are just symptoms of a growth industry. This pattern is endemic across Europe and is counterproductive across many levels – not only does it divert resources away from more critical path activities to things that have no material impact in the long term, but more importantly, it reveals a lot of information about the maturity of understanding held by a jurisdiction into the real working of the technology sector. Encouraging root causes attracts sophisticated investors and creates strong businesses. Encouraging symptoms attracts sharks who know how to profit from the public purse.

Truly SMART metrics are critical to establishing credibility with the sector globally. Technology is very different to Finance at a fundamental level. In Finance, good marketing can create a financial product by stimulating confidence. In Technology, the reverse is true – good products come from engineering that can be measured and proven, so any product which comes with significant marketing spin attached is viewed by the market with deep suspicion. A good example would be the $1B sums spent by Microsoft on the Surface tablet range which caused the market to steer clear in droves. First and foremost, we should be measuring the success of the policy framework in terms of actual product sold in export markets and capital raised to build new businesses. Please, please ignore the marketing teams of Tech City, Berlin and other wannabee hubs as they try to justify their existence in made-up league tables and gloss infographics. The only judge we must care about is the market itself and that is where we have to earn respect.

Skills

On the topic of Skills, it is important to recognise privately that Jersey is doubly handicapped at the current time. Like all societies, we can only produce people who are genuinely skilled in technology as a fraction of a percent of population. Unfortunately, in our case, our existing technology skill-set has traditionally been dominated by the need to support Finance customers. In the grand scheme of technology, the Finance sector is amongst the most conservative of customers. In my experience internationally, I have seen customers in this sector spend tens of millions of pounds purchasing 30 year old technology to attempt to solve modern world problems to disastrous effect. Within corporate finance, the predominant culture internally isolates much of the industry from modern process and techniques. Needless to say, this is not a strategy that works well for long term efficiency and viability.

We must therefore be very, very careful that the culture of the incumbent FS support industry does not lead us into creating skill sets that have very limited economic value outside the island. For example, customers in Jersey may pay in the order of £800 a day for a technical resource that is in relatively short supply here. Off-island, that same resource may only command a £250 day rate in a falling market. On this basis, businesses that are very success providing support services inwardly in Jersey have no hope of competing in a global market with the same business model.

The skills we should be encouraging are those most in demand to enable the rapid creation of viable export technology product across the industry – these being primarily related to re-use of Open Source platforms and services at this time.

Perhaps I might politely suggest that the policy also consider the skills and training of Ministers as part of its remit? I am encouraged to see one or two ministers taking time out to visit other

technology jurisdictions and I feel it would be money well spent to help our leaders develop a more intimate understanding of the real demands upon technology businesses today. If anyone fancies a secondment into industry for a bit, feel free to shout…

Looking forward, the skills profile will naturally shift in relation to demand. Right now, we clearly need expertise to start businesses and grow the market. A new resource fresh out of college needs 10,000 hours of real world experience to become a valuable junior developer and an architect needs at least three times that to have appropriate experience. Hence our priority today has to be the delicate subject of immigration. As we start to have real world successes in the global market, so younger residents will see the opportunity to make money in the sector and more home grown talent will start to self-motivate. In the meantime, it is far better to support the private sector in training or hiring the staff it needs as any generic IT curriculum is always going to be impossibly dated and often counter-productive. Practically, it's easier to train someone who is dedicated but has no experience than to re-train someone who is opinionated in a technology that is now obsolete.

I would suggest that we are careful how we measure the size of the technology job market as this has a bearing on the overall appetite for essential immigration. As a benchmark, the total tech roles created by the alumni of Silicon Valley incubator, Y-Combinator over its entire history is around 2,000 jobs. Those 2,000 people represent $14 Billion of technology businesses. Despite the JEP, Jersey could absorb another 2,000 people without measurable degradation to community lifestyle and I'm pretty sure that an additional £10B on GVA would have some local benefits. Obviously unrealistic to compete at that level, but worth bearing in mind that if you publish figures showing similar employment in the tech sector but less than 100th of the revenues, it makes it appear that local competency in the sector is very low to external observers.

On the general case of trying to encourage young people to follow a technology career path, there is something that the community might be able to do to encourage this. Ask a young person what they want to be in the future and you'll find a lot of aspiring dancers, footballers, musicians and reality TV celebrities. This isn't because people really want to spend a decade or so running around muddy fields in the rain or sleeping in rusty transit vans with drug addicts and drummers. It's because modern society clearly demonstrates its respect for people in those roles and puts them on a pedestal. The same is not true for engineers. How many statues of important engineers are there in Jersey? Perhaps if we were to demonstrate more respect for engineering as a community, that might make sorely needed role models more visible and compelling?

Comms Infrastructure

The lure of gigabit broadband played a very significant part in encouraging me to relocate to Jersey four years ago. Sadly, I have to report that it is also one of the most frustrating elements of my time here. I deliberately picked a home base in a parish with an early roll out date, then waited three years with no install. Subsequently, I was forced to move and am now told that fibre here will not be provisioned until the end of 2017. I have less wired broadband bandwidth than I had in rural Wales in 2010. Since the copper service is so poor, I have to rely upon 4G for connectivity. The recent JT repricing on 4G has meant a five-fold increase in data costs this year with no competitive alternate service offering in my area. Generally, I have to say that this is a fail from my perspective.

I think that there are things that could perhaps have been done smarter with the fibre roll out. JT's priority is to get the largest numbers of consumers connected, but this might not be in Jersey's best interest as a community. Consider that the use case for the average consumer is to be able to download consumable media faster. Fibre makes it much more convenient to consume music and video, thus increasing the rate at which money drains out of the local economy to Netflix, Amazon etc. Despite my best efforts, I have been unable to get JT interested in the idea of facilitating the creation of local revenue-generating online services. If we had made that easy on day one, we could collectively have spent the past three years developing local product offerings and building a customer base.

If the roll-out had prioritised digital content creators and made it very cheap to host micro-scale services on home broadband connections in the island (game servers spring to mind as an obvious example), then we would be offering a competitive advantage to revenue generating micro businesses locally and making it easy for young kids to discover the rewards of creating services that they can share with their peers. As it stands, JT heavily discourage commercial use of fibre in favour of massively overpriced business packages and content creators have to wait in line.

Consider also the real advantages and disadvantages of a fibre network. JT is able to offer gigabit point-to-point bandwidth on island at no significant cost, but has a major bottleneck off island. So, as consumer adoption of fibre increases, the collective experience decreases or costs for off-island bandwidth capacity increase. So, fibre as a way to consume off-island content is not an ideal application. Consider however if we had on-island services that offered very cheap multi-way video conferencing, VPN and remote backup services. At that point, you can treat every home as a remote office location with virtual meeting capability and full LAN-equivalent speed private networking. I speak as someone for whom remote working has been the norm for the past couple of decades, so I can speak for the significant increase in productivity that comes when your team is not easily able to get distracted by office gossip and make-work meetings. If fibre were used as a mechanism to reduce the influx of staff into town each morning, we could reduce demand on limited office space, reduce the traffic and parking problems, save energy on petrol and save energy heating an office and an empty house simultaneously. Environmentally and socially, it's a big win all round and only possible through the medium of our gigabit infrastructure.

My vision for St Helier in the future is instead of an increasingly bleak and faceless office zone full of people socialising when they should be working, then going home to the TV, we see many people working at home during the day, being very productive, and then coming into town in the evening in order to meet people and socialise. This inversion transforms the town into a much nicer place to live and revitalises the parishes as more than just dormitories. All enabled with existing technology and a little cultural change.

Government Transformation

This is an area where I speak with particular expertise, since I dedicated a number of years to studying how UK government projects manage to fail so spectacularly in the face of the increasing availability of good, cheap technology. I have personally witnessed the wasting of £20 Billion of taxpayers money in the UK on projects where technology professionals such as myself had advised from day 1 that success was impossible based upon flawed early political & management decisions.

Statistically, 70% of software projects fail and 20% of those fail so badly that they undermine the viability of the organisation running them. So, I will be blunt – to end up in the 30%, it is critical to have good corporate governance in place. A typical root cause for failure is to have projects run by executives with no engineering experience, or to allow political aspirations to over-ride software engineering governance. Almost all problems on government IT projects are people problems, NOT technology problems, however the two most complex technical problems to solve reliably and safely are Identity Management (Digital ID) and Systems Integration (ESB)…

Within the SoJ, IT budgets are 100th of those spent by individual UK departments each year and the sobering news is that the cost of eGov services does not scale with the number of customers, but rather with the complexity of the underlying problem space. This means that the solutions we need here are on a par with those in the UK for fundamental complexity. If we attempt to follow traditional UK practice in approaching government service implementation, we will fail for lack of budget. To succeed, we need to leverage our agility and approach problems laterally with clever engineering solutions and lots of elbow grease or we will find our budgets cynically milked away by larger IT suppliers for no appreciable return.

There needs to be strategic recognition of the need to move away from technologies that are convenient for suppliers and towards technologies that align with customer demand. A great example of that is the fact that the majority of consumption of online services today is via mobile devices and the vast majority of those are in turn based upon Open Source technologies. So, your customer base is heavily aligned to Android and iOS platforms, but your back office is still on Microsoft. Note also that Microsoft itself has just announced that it is withdrawing from the consumer mobile market because it has no way to compete in the face of the established competition. To stay relevant and cost-effective, SoJ and the island's supply chain needs to transition to the dominant model of Open Source as a commoditising force in service provision.

From recent experience, I can report that there is considerable cultural resistance to making this shift within SoJ. You have good technical resources who understand the issues involved and would welcome change, but are reflexively opposed to considering alternative design approaches because they have been led to believe that they are 'a Microsoft shop'. One of the most powerful tools available to policymakers today is to make it clear that eGov is to drive the adoption of modern delivery methodologies and a wide range of alternate technologies in its search for optimal service provision. I urge you to unblock this barrier at all costs since in the medium term it will also encourage local service providers to re-skill to more globally viable technologies and approaches.

It is also important to understand that existing teams who have been struggling to keep things going in the face of overwhelming challenges and who are themselves under threat of downsizing, can often suffer from 'battle fatigue' which leads to lack of engagement, negativity and self-sabotage. A fresh start with new tools and training can help to overcome this.

With regard to eGovernment services and centralisation, this is very much a double edged sword. Government wishes to ensure it can trust that consumers of services are who they claim to be, but consumers must also be able to trust that government is capable of appropriately, safely and responsibly managing their personal data. In the wake of tens of millions of personal records being lost by governments internationally and the exposure of flagrant misuse of personal data to perpetrate mass intrusion upon citizens at their own cost, that trust relationship has been lost.

Jersey has an opportunity to demonstrate high standards on an international stage by implementing very transparent eGov services which clearly protect residents from future potential misuse of their data and which play to our strengths as a trusted jurisdiction. I would recommend that the policy clearly address this goal in order to build confidence in adoption of eGovernment services. Anything that could be portrayed as an attempt to impose authoritarian data-gathering activities similar to those ongoing in the UK is likely to undermine adoption significantly, wasting all our efforts.

Don't underestimate the risks associated with Digital ID. Understanding of the problem space is limited here and costs could easily over-run by two orders of magnitude. If a good solution is not found to address the current lack of trust from residents towards government, it is highly likely that adoption will be boycotted by a significant proportion of the populace. Convenience and safety are the key components to building trust. This needs to be built on the back of good service design, NOT driven by a desire to buy whatever product looks good in the sales brochures.

If I were to give you one pearl of wisdom from the oyster of UK government IT failure, it would be that if a project starts with the procurement of a piece of software before it works out in detail what requirements and what services it should implement, it is guaranteed to fail expensively. Caveat Emptor!

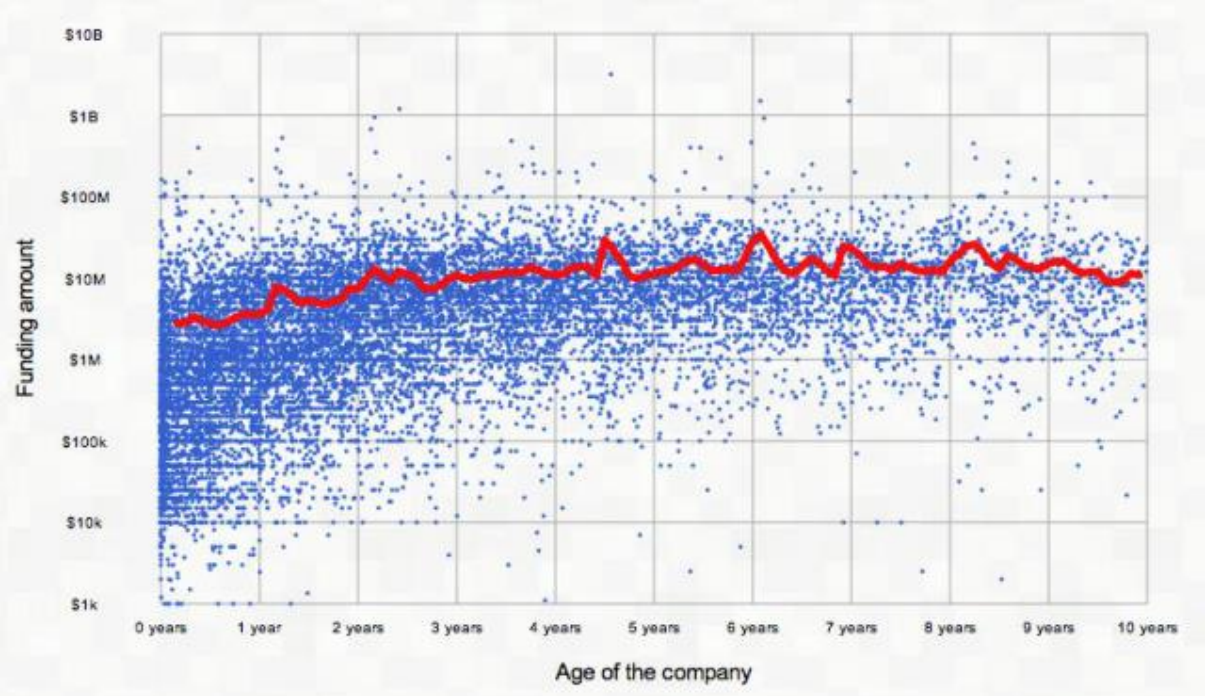
Economic goals

If the stated goal is to create increased economic diversity for the island, then we need to target our activities in a way that is significantly different from the current position. Fintech businesses and provision of IT services to the financial sector provide no hedge against further downturns in the global markets. Economically, service businesses decline in line with recession in their sector. To meet our goal, we have to focus specifically upon export of technology product, which is the only aspect of the industry capable of bringing significant additional revenue into the economy, rather than just recycling money already inside the finance sector.

So, how much money? Well, to move the needle on a GVA of £4B, we need at least 10% of that coming from export of tech products and related IP. So, that's businesses with revenues to the value of £400M per annum. Big numbers, but not impossible if we are talking about products competing successfully in global markets. Let's work the problem backwards by looking at the global market:

The average successful global tech business gets to revenues of around £32M after five years. So, we would need a dozen of these to hit our economic target. What does it take to create a business like this? Well, a good business model, excellent execution, a small number of skilled people and sufficient capital.

"How much capital?" is the critical question. The best answer comes from measurement. The following chart shows the amount of capital raised, by age of company, filtered to show only successful global technology businesses in their first decade.



The red line represents the mean capital raised, which fairly consistently hovers around a value of about £16M. What this data shows is that there is a pretty consistent cost to entry of the global scale market. This is not that surprising really. If you are selling globally with revenues in the tens of millions, then you need a lot of peripheral support staff and services and face significant costs of doing business internationally.

This is not news to the VC community who regularly invest in technology products. Instead, it's a fundamental rule of thumb. If your business model is not capable of hitting £30M in revenues, your idea is fundamentally not investable.

It is this that reveals the gaping flaw in many of the European (and UK) efforts to encourage technology business growth. All the current hubs are based upon the misconception that it is possible to develop successful businesses with half an idea and a few thousand pounds. The reality is that all the low-hanging fruit got picked decades ago and developing modern products requires experienced teams of people and the ability to purchase enough customers to reach a sustainable business before somebody else copies and executes better. That means significant capital.

There are many ideas in technology that can be sold, but will never sell enough to become globally competitive. Most will never sell enough to recoup their capital investment and so sophisticated investors will never entertain them. The net effect is that these types of economic 'stimulants' are actually encouraging their founders to embark upon journeys that are 99.99% certain to lead to the 'valley of death' where a business runs out of cash before it can scale sufficiently.

VCs look for High Value Propositions – products with a known downside risk (but still high enough that it acts as a barrier to entry for competitors) and a potentially infinite upside return. In other words, a business model that demonstrates *convexity*. If you only invest in these types of models, then statistically you will come out ahead over time, regardless of which succeed and which fail.

These HVPs will all be business models that look very different and very scary to observers outside the industry. If something is genuinely innovative, it will by definition disrupt what has gone before and change the rules.

Unfortunately, this is where I must come to the elephant in the room. The Innovation Fund as it stands today was far too small to ever engage with a single business idea capable of growing to scale and the recommendations have tended to be of a 'conservative' nature, selecting for business models that feel 'safe', but through their familiarity are trying to compete in areas that are already saturated with stronger competitors far ahead on exponential growth cycles.

Jersey must either leverage its way up to the required level to play in the game successfully, or should stop before it causes active harm to the community through diverting scarce resources into projects that are in reality high risk in this sector. Better to have our best people collaborating on building a few strong ideas at scale, than all heading individually for assured failure.

I have made the argument frequently that Jersey's easiest path into the technology sector is to become recognised as a go-to location for technology investment. We need at least one fund of at minimum £250M before we reach the type of credibility and effectiveness needed to be accepted as a viable location on the world technology map. At that point, we become capable of attracting people and ideas which can succeed and we stack the deck in our direction. This would have to be a commercial fund, since the numbers are far too big to be palatable politically, but there are levers that the island could pull to help make the idea look attractive to commercial players. Taiwan is a great example of how to do this well.

In the meantime, smaller scale incentive investment could be provided as seed funding to encourage entrepreneurial thinking, however I would recommend that this came with experienced mentoring to help aspiring entrepreneurs to identify HVP models and to become investible at the next stage.

With this type of pipeline, Jersey would begin to develop an eco-system that functions in the way that Silicon Valley and Taiwan operate, covering off all the bases to attract the best ideas from a global pot, bring them here and give them the very best chance to fly.

I could speak to the issues surrounding government procurement and local suppliers, but as I am currently engaged with the States of Jersey on an in-flight eGov project, it might not be considered appropriate.

Emerging Technologies

Unfortunately, I must also touch upon another issue of credibility at this stage. Within the industry, it is well understood that it is effectively impossible to predict which business ideas will succeed. The history of the industry is littered with stories of the most experienced of players turning down opportunities to invest in the Apples, the Googles and the Facebooks of the world. Mathematically, the industry is fundamentally a *chaotic system*, which means that ideas are very sensitive to initial conditions. So sensitive, that were you to wind back time and re-launch Facebook, mathematically there is no certainty to prove that it would succeed again a second time. This understanding is so prevalent that sophisticated investors all play a very different game. As discussed above, instead of

targeting specific ideas, they look for convexity in business models and then play a large portfolio to win on average.

The corollary of this is that when the island announces that it is focusing upon specific market areas like Fintech or Medtech, what it is really doing is advertising to sophisticated players that it doesn't yet understand the rules of the market. If I were to draw a parallel, the reaction of an experienced technology entrepreneur or investor to statements about targeting market areas is similar to that evoked in a local finance professional when a speaker refers to the island as a 'Tax Haven'. The reality is so much more complex and nuanced, so the statement reveals naivety in the speaker. I would heartily recommend a move away from policy statements based in this direction and instead err towards public promotion of more generic technology investment.

In practice, although there are obvious connections with fin and medtech to be made here, they actually represent the two most highly regulated industries in the world, so cost of entry to these sectors is likely to be an order of magnitude higher for any given business. By focusing on these sectors we are actually making it much harder to build successful businesses, given the fundamental lack of capital flowing in the system today. I wouldn't want to pour cold water on island aspirations in these areas, but as a late-comer to the game of technology, we have to speak credibly to our audience in order to avoid being dismissed by busy people who might actually be in a position to help us achieve our goals if we were saying the right things consistently.

Have no doubt; the world is watching what happens here, as with all potential international business opportunities. Our task now is to move Jersey off the email circulation list of "*You won't believe what Jersey is claiming this week <snigger>…*" and onto the list of "*Potential HVP on radar <interested>…*"

In terms of other barriers, the absolute highest priority has to be changing the rules around business and housing licences for technology specialists. If we want growth economically, we have to build start-up businesses in the sector. If we are building start-ups, we need top people, but we will be paying them in equity for the first few years, so their income (and therefore tax contribution) will be very low to start. This is fundamental to success, but goes against current policy for getting access to licences. As one of the most experienced technology professionals currently living and working in Jersey, I find it highly revealing to have been informed by a Minister that I am "of no economic value to the island" and to have been told that they would "prefer a Polish cleaner" to a technology entrepreneur. No options open to the island can create an immediate step change in economic output. We as professionals have to invest in building technology products to sell and the island has to invest in us as a scarce resource with great medium-term potential. That will take time and policy must reflect the reality of encouraging a more entrepreneurial culture.

Remember that you are competing with the rest of the world for a very scarce resource – *genuinely skilled and experienced technology professionals*. Forget the Daily Mail articles about schoolkids who make £1M iPhone apps, they are the outliers on the tech graph. The average age of a successful technology entrepreneur is 46. What the island needs is a small number of people who have a couple of decades of mistakes under their belt and a lot of real world expertise. Then it needs a slightly larger number of 20-30 year olds who are fearless and on a mission to change the world with technology. That mix should be enough to create significant growth and provide work for everyone else here already.

In general, however, the idea of being ‘a Favourable Environment for Emerging Technologies’ is a good one. So long as we are completely agnostic to the technologies in question, it’s a strong strategy for success. No Priests, no Gatekeepers, this is an area where only the market decides.

Responsive Regulatory Environment

This is a potential plus point, if Jersey can be genuinely daring. Right now, entrepreneurial activity is thoroughly throttled in the island. As a known entrepreneur already holding a business licence in Jersey, this year it took me FOUR MONTHS to incorporate a new technology business, get a business licence granted (without housing) and create a commercial bank account. At every step of the way, it was made very clear to me that starting a business is something that is viewed here with the type of suspicion normally reserved for convicted felons and cold-calling salespeople.

We need a radical about-face culturally, to the extent that in future, people who aren’t thinking entrepreneurially should be considered as failing to do their bit for the community.

Some level of playing to the media stage is acceptable in this area. Let’s put in place legislation that makes it possible for autonomous vehicles to be operated in the island. Let’s make it legal to pay taxes in Bitcoin. Let’s enact legislation that protects residents from inappropriate digital government oversight. Let’s be visibly favourable to entities investing in technology business through the island.

Above all, let’s position ourselves on technology matters closer to the US and the Far East than the UK and Europe. It’s clear from recent events that massive change is on the way and our geographic neighbours are failing to adapt to the social and ethical change that comes with modern technology. We must stop following and very visibly start leading in order to be taken seriously in future.

Cyber Security / Data Protection

I am again somewhat constrained from speaking on this topic due to current commercial engagements, but in general terms:

It is very important that the States of Jersey be seen to be a trustworthy custodian of resident’s personal data. Government in general worldwide has a horrific track record of failing to secure data against loss, and of deliberately abusing trust and misusing private data for unlawful purposes. Jersey must set higher standards for its leadership in this area.

Security must be a topic for all, not a mission for government. A ‘Great Firewall of Jersey’ might appear to be popular in theory with the electorate, but it’s a genie that can’t be put back in the bottle. Any attempt to enforce centralised rules on network access opens the door for every minority group to vent their prejudices upon government in a way that is very hard to avoid politically. Really best not to go down that path as it could easily suck up tens of millions of pounds with no measurable benefit and a lot of negative politic flak. The safest approach is to act in the role of educator and to encourage more commercial activity in the space.

On the topic of data protection, the Cloud is here to stay, so we need to remain engaged in international discussions regarding protection of data passing through geographic locations with potentially hostile government policies. If there are ways that we can leverage our historic position

to create distinct offshore data status for other potential customers of cloud services then this should be investigated.

Note the relationship between location of data residency and ability to access data in a confidential manner – this reflects back to cyber security policy and (freedom from) State oversight.

What's Missing?

To the tech industry on a global scale, the real attractor to Jersey is not Fin-Tech, it's Tech-Fin…

Silicon Valley is dominant because it's still pretty much the only place to go in order to raise capital to start a tech venture. $81B of tech investment capital in the USA vs £750M in the UK. The capital is the fly paper that attracts and captures the very best minds from all over the world. You have to go to SV to find investors and 99 out of 100 term sheets will insist that you relocate there in order to be easily mentored and monitored. In this way, the engine of the Valley keeps turning, bringing more and more expertise together in one spot. This is the reality of the industry – capital is essential to build businesses and capital is used to make sure that the best people and products stay near the money.

The ONLY way that Jersey can develop a technology economy beyond 1-2% is if it becomes an alternative source of investment capital globally. The logic is simple – if I put together a team in Jersey and create a prototype of the next great product, I will need to raise £10-20M to take it to market globally. So, I have to go to SV to talk to VCs. Assuming it's a HVP, I get several offers, but they all come with a clause that says I have to headquarter near the VC offices. End result, I go to the US and Jersey loses economically. You already have evidence of this happening, to the embarrassment of Ministers.

The good news is that the market is ripe for competition in this domain, and Jersey has a reputation that strongly supports the credibility of this as a USP for the island. Taking US investment means buying into US foreign policy and accepting that the government is likely to force your business to hand over access to all your customer data at some point. This is not palatable, morally and ethically, for a large number of founders, internationally.

So, I would expect any policy framework to have a dedicated top-level section focused upon the ways in which Jersey intends to leverage its position in order to become competitive and recognised as a source of commercial technology investment capital. **This is the lynch-pin that makes all the other activities worth pursuing.**

There is another headline item that is a 'root cause' for technology success, however it's not quite so obvious. There is a common thread that links everyone who works in the technology sector and it's the primary driver for those who start technology businesses. *We all experience joy in making things*. Some of us are far more motivated by the idea of creating something truly useful and sharing it with an appreciative audience than we are by the idea of getting rich doing it. The World-Wide Web and Open Source are here for exactly that reason. Why is someone who can earn £150K a year working 9-5, willing to spend six or seven years in abject poverty trying to create a technology business? It's because, fundamentally, we are Makers, not Consumers.

If you truly wish to succeed in technology, you have to fully understand and embrace this motivation. We don't work in this industry because we have an abstract intellectual interest in science, or because it's a job with prospects. We do it because, at a very young age, we discovered that it was a way in which we could take control over the world around us and shape it to our will, creating something new with our minds that has never existed before and in doing so, bring pleasure or relief to millions of people.

The desire to Make is prehistoric. We are the Ape that makes Tools. In Germany, Japan and China, this is well understood. The US and UK forgot this in the 1980s and 1990s in their rush to pursue money for money's sake. In the US, we have seen a widespread revival of Making over the past five years with the 'Maker Movement' having progressed from 10,000 garages across the country to the lawn of the White House.

Jersey has lots of Makers. Mostly in traditional skills rather than technology and mostly amongst the least respected of the community. These, however, are the people most likely to be instrumental in economic change because they have the right motivation and just need the access to tools and markets in order sell real product in pursuit of their passions. We need them on board.

Skills and education are a side effect of desire and motivation. If you have a default theoretical programming course as part of secondary education, you will see maybe three or four effective programmers from each year. If instead you engage the whole community celebrating the joy of Making Things at all levels, you will inspire many people to self-motivate and teach themselves coding, electronics, 3D design, graphic art, video-production, robotics, flight control, AI, etc.

A small, isolated community that is habituated to passive consumption of mass-produced product from China is fragile and easily disrupted.

A small community with a tiny, elite class of professional engineers is stable, but limited in focus.

A small community in which everyone can make and repair, design and jury-rig solutions to problems, is *anti-fragile* and gets stronger in the face of crisis.

It has never in the history of the world been easier for individuals to leverage technology to make products for themselves and the story of the next decade will be about people continuing to take back the means of production and create unique and valuable items.

I would expect a technology policy framework to have at its core an expression of the desire for the community to unite in seizing the moment, grasping the opportunity to all become Makers at different scales and to build a stronger, safer, more stable community for ourselves. "*Winter is coming*" in more ways than just unpredictable financial markets. This week has seen an unprecedented climate change event in the form of the northern jet stream crossing the equator and linking the hemispheres in a way that has not been observed previously. In the next decades, we will need a community that is capable of finding its own solutions to problems we can hardly anticipate today. We need to celebrate Makers and give them the recognition that motivates them to new heights.

As part of this policy, I would expect to see lots of low level incentivising and celebrating all types of Making. Much of this can be cribbed directly from the USA and there are already some capabilities that can be leveraged here, like my Fab Lab and the work at the Library.

At a higher level, we should be looking at a roadmap of essential island capabilities that may need States support to get in place. For example, being able to fabricate things locally is very positive for island resilience, but we have lost much of our engineering capability. Being able to come together as a community to share the overhead of valuable tools like waterjet cutters and pick-and-place machinery would make us much more self-sufficient as an island and spark new small business opportunities locally. Access to these tools then allows some individuals to pursue ideas that can be scaled to global products.

I hope that my comments are of help in forming this policy. Please don't hesitate to get in touch if I can be of any further assistance.

Sincerely,

Terry Cox

Bootstrap Jersey

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