



Fujitsu Ireland Pre-Budget Submission 2021



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1. Executive Summary

Budget 2021 is the most strategically important budget faced by the State in a decade, with the measures contained within likely to set Ireland and our economy on a trajectory for many years and even decades to come. Contextually speaking, the outcome of General Election 2020, following two recent landmark referendums on social issues has shown that Ireland has changed and there is a desire for yet more social progress leading to a more sustainable, equitable and prosperous society. There is also the ongoing economic and societal impact of COVID-19 that presents further challenges in what was already a critical budgetary cycle for our country.

Budget 2021 represents an opportunity for this Government to address economic recovery with environmental and positive societal outcomes in mind. This can, in part, be achieved through aligning a national technology and digital strategy to societal needs and aspiration, while addressing the UN Sustainable Development Goals (SDGs).

This can be practically implemented in the short term by the identification and implementation of 'appropriate' innovation using a consolidated procurement strategy which will deliver cost efficiencies across the public service, i.e. directed innovation, undertaken in a cost-effective way. When coupled with a progressive and ambitious digital skills and jobs strategy, and policies that enable a green recovery, we can capitalise on the opportunities, which have unexpectedly presented themselves.

To that end, Fujitsu has prepared this pre-budget submission to provide guidance to Government. By implementing our guidance, the benefits of technological change and responsible business practices can play a role in both weathering the storm of the economic consequences of COVID-19 and to allow Ireland emerge from the current crisis as a society and an economy that better meets the needs of all its citizens.

For the purpose of this document we have focussed our attention on the key areas of **enabling a green recovery**; increased investment in **digitisation including e-Government**; and **targeted education and skills**, suggesting measures throughout, which we would urge government to consider in the drafting and implementing of the upcoming year's fiscal policy.

Fujitsu is fully aware of the fiscal challenges and many competing priorities with which the Government is currently grappling. To that end, we have suggested measures, which will cut expenditure and free up resources, which can then be reinvested and redeployed into those sectors, which are in need of support.

Fujitsu's ambition is to be Ireland's technology partner of choice and we are committed to supporting government as it seeks to plan and implement a green recovery. In this document we outlined Fujitsu's technology vision for Ireland as well including case studies of our work globally to showcase what is achievable through targeted technological investment in both the public and private sector.

Fujitsu Ireland is the local branch of the Global IT services company, which is headquartered in Japan. A large local employer with 300 employees based around the Republic, Fujitsu contributes to the local economy in many ways. This includes work in the communities in which we serve as part of our Responsible Business programme and aligned with our accreditation with the BWR (Business Working Responsibly) quality mark. We are focused as a company on providing trust through innovation in a sustainable way it is within this context that we offer this pre-Budget submission. I am personally pleased to offer these opinions to the Government on behalf of Fujitsu as I believe strongly in giving back to the society in which I have lived and worked for over 20 years.

Mise le meas

Tony O'Malley

CEO, Fujitsu Ireland

2. Our Asks

The infographic is divided into three vertical columns, each with a distinct header and a matching color scheme. The first column, 'Supporting a Green Recovery', has a green header and three light green text boxes. The second column, 'Investment in Digital Services', has a blue header and two light blue text boxes. The third column, 'Targeted Education and Skills', has a brown header and three light orange text boxes. Each text box contains specific recommendations related to its respective category.

Supporting a Green Recovery

In support of a Just Transition, consideration should be given to including criteria within public sector tenders to reward companies who demonstrate a reduction in their carbon footprint

Fujitsu would urge the adoption of mechanisms which make public sector tender submissions more efficient, e.g. unnecessary duplication of data entry. For instance, a digital passport for registered companies to automatically generate certain fields

Fujitsu would welcome the development of a national carbon reduction standard / mark administered by a government agency, which could be awarded to those companies who significantly reduce their carbon over a 3-5 year period

Investment in Digital Services

Encourage measures which enable dynamic, suitable and secure remote working, including increasing tax relief for remote working, broadband infrastructure investment, investment in remote hubs and a public information campaign to mitigate against the heightened cyber threat landscape

To counter COVID-19 and support the vital retail sector, mechanisms for frictionless shopping including online retail experiences, contactless shopping and omni channel purchasing and ordering should be supported

Targeted Education and Skills

The new National Digital Strategy must set out strategic goals and credible pathways to leverage the possibilities of IoT, 5G, Cloud Computing, AI and Blockchain while keeping the end user and sustainability central to the strategy and its implementation

Fujitsu would welcome all measures which seek to close the digital skills gap in key areas of human centric design, security, data science and IT architecture

Government should seek to expand the number of 'Top Teams' within the Department of Enterprise, Trade and Employment to include other specialisms within the ICT sector. This could include, human centric design, security, data science and IT architecture

3. Introduction

Even in normal times, society is changing and developing at an unprecedented rate, driven by technological advances, globalised trade, consumer patterns and societal demands, but these are not ordinary circumstances. The ongoing pandemic is causing large scale disruption and looks set to influence our working lives and living behaviours for a long time to come. Some of these changes will be permanent and their consequences far-reaching.

While there is no doubting the great human cost and the grave economic consequences of COVID-19, beneath this crisis, opportunity beckons for governments who are prepared to be agile, bold and decisive. Fujitsu is aware of the pressures, challenges and hard decisions which this government faces and is eager to continue to be a supportive and collaborative partner to both it and its agencies. Fujitsu currently proudly provides services to the Department of Business, Employment and Trade, Department of Defence, Department of Employment Affairs and Social Protection, Revenue, the Houses of the Oireachtas, Teagasc and the HSE amongst others.

As one of the world's leading ICT companies, Fujitsu is ideally placed to provide its global experience and local expertise so Ireland can fully harness the power of technology and embrace its potential as a force for positive change. Digitisation including e-government has transformative potential for both the public and private sectors - driving efficiencies, enabling redeployment of human resources and improving service delivery like never before. This potential must now be realised through close collaboration between government, industry and service users.

As noted in the Programme for Government, technology and digital skills can, and must, play a leading role in fulfilling the promise of a green recovery and delivering a Just Transition away from fossil fuels. Sustainability must be at the top of our national agenda as we seek to collectively accelerate climate action to boost climate resilience. Technology companies can play a major role in enabling organisations to make these disruptive transitions and, moreover, must lead by example in reducing their carbon footprint, providing proof of concept to their public and private customers.

COVID-19 has also meant the emergence of many new ways of working that is creating a realignment of society. New flexible working routines and remote working are becoming the norm for many traditionally office-bound workers. While initially introduced as an emergency measure in the public and private sector, Fujitsu believes remote working has the potential for huge societal benefits in terms of reducing pressure on strained transport and housing infrastructure and improving workers' quality of life, all while reducing our carbon footprint. That said, these changes must be supported by the necessary infrastructure in terms of IT services, Cloud, hardware, software and connectivity.

As Ireland enters an economic recession, the temptation for public and private organisations would be to reduce spending in certain areas like technology, however, this is a time when initial investment is required to not only lower costs but improve productivity. Should we collectively succeed in implementing positive digitisation, the benefits will be felt for generations to come by individuals in their communities, families and workplaces.

To that end, this paper outlines the case for continued and increased targeted investment in technology, underpinned by supporting policies, to drive a green recovery.

4. About Fujitsu Ireland

Part of a global network, Fujitsu Ireland is an Information and Communication Technology (ICT) company, providing solutions to a diverse range of public and blue-chip private organisations. We're passionate about using technology to create a more inclusive, sustainable and trusted future. Together with customers and partners, we collaborate and co-create to take advantage of the benefits that digital disruption brings. Approximately 129,000 Fujitsu employees support customers in more than 100 countries. We strive to be the employer and partner of choice by using our global presence to deliver effectively locally.

We honour our Japanese culture by building long-term relationships and giving our customers a unique people-centric approach to innovation, where everyone everywhere is empowered with digital technology. Today, we respond to the modern digital world by co-creating with our partners and customers and driving new value from cutting-edge digital technologies that not only transform the way we work and live, but contribute to solving global social challenges.

In Ireland, our trusted team of nearly 300 employees are helping our customers in all sectors, driving their digital transformation. Our goal is not only to deliver great results for our customers, it's also to be a responsible business that respects its customers, employees and suppliers. We are a proud member of Business in the Community Ireland (BITCI), achieving the high standard of the Business Working Responsibly Mark each year since 2015. Our team is dedicated to building a sustainable business model that incorporates supporting our local communities.



5. Supporting a Green Recovery

In planning Ireland's recovery from the economic downturn caused by the COVID-19 crisis, there exists an opportunity to reimagine not just the economy but how we live and work together to create a more sustainable society – alleviating pressures on both households and over-burdened national infrastructure.

In our view, the way we have been living is incompatible with our planet. To accelerate climate action, we must change our behavioural patterns. The lockdown period has given us valuable insight into just some of the actions which we can take to deliver on the UN's Sustainable Development Goals and reduce our carbon footprint.

The pause or slowdown of manufacturing and industry in many sectors; and reduced travel by car, plane and public transport in preference for walking and cycling, has seen startling environmental benefits, reducing our carbon emissions.

For example, the results of a recent paper by researchers at the centre for Marine and Renewable Energy (MaREI) in University College Cork has shown that transport outputs, which account for 40 per cent of Ireland's total energy consumption, fell hugely during the lockdown period. MaREI has modelled that 12-weeks of (likely) restrictions and another 12 weeks of partial restrictions on road, aviation and rail travel could result in CO₂ savings as high as 1.5million tonnes, 3.3 million tonnes and 22,000 tonnes of carbon respectively.¹

While the scale of the slow down experienced in March-May may not be repeatable and would have hugely damaging consequences for the Irish economy and its people, consideration should be given to incentivising and fostering measures which both support the national public health priorities in the fight against COVID-19 and reduce our carbon footprint. Aligned to SDG Goal 13, remote working is one of the most effective ways we could do this.

It is our experience that employees can gain significantly from remote working, from avoiding commutes and enjoying more quality time with family, to a lower overall cost of living and better quality of life. Census 2016 illustrates that, nationally, 1 in 5 commuters have a travel time of over 45 minutes with the amount of time people are travelling to work increasing significantly from 2011-2016.² Those who will benefit most from a transition to more remote working are those in Dublin's surrounding counties of Meath, Wicklow and Kildare, who statistically have the longest travel times for work.

While the CSO has recently shown that the strong public preference (68%) is for a blended working experience (home and office-based work), a reduction in both the number of people travelling for work and the number of days employees are travelling for work would have a major impact on our national emissions. The benefits would extend to supporting city pedestrianisation measures and extra cycle lane supports.

Fujitsu welcomes the launch of a public consultation on Remote Working Guidelines and as a member of Business in the Community and a holder of the Business Working Responsibly Mark³ (audited by the NSAI) would **welcome any measure which supports low carbon initiatives which reduce our carbon footprint as Ireland seeks to transition to a low carbon economy through a Just Transition.**

¹ <https://www.marei.ie/marei-covid-19-analysis/>

² <https://www.cso.ie/en/releasesandpublications/ep/p-cp6ci/p6cii/p6td/#:~:text=In%202011%2C%205.9%20per%20cent,20%20minute%20average%20travel%20time.>

³ The Business Working Responsibly mark is the only independently audited standard for CSR and Sustainability in Ireland. The Mark is audited by the NSAI and based on ISO26000. It is open to both members and non-members of Business in the Community Ireland. Once achieved, it is valid for 3 years.

http://www.bitc.ie/csr-certification/?qclid=CjwKCAjw1K75BRAAEiwAd41h1FyZ5XvEkPBR8FmDUo_guogivS20qLXQLyUh4tIIVDmF7H3PD_XK2xoCUqsQAvD_BwE

Supporting a Just Transition through greater digitisation

As referenced in the Programme for Government, Fujitsu supports the intention to direct the OGP to support the adoption of new technologies through the development of new public service frameworks to deliver e-Government initiatives. In doing so, **Fujitsu would urge the adoption of mechanisms which reduce the barrier to entry for potential providers such as reducing unnecessary duplication of data entry while completing government tender submissions. For instance, a passport for registered companies would mean that many fields would be automatically generated.**

Additionally, in support of a Just Transition, **Government should consider including criteria within public sector tenders which reward companies that can demonstrate a reduction in their carbon footprint.** Such measures would incentivise companies to be more responsible and enshrine sustainability in all their business practices.

Fujitsu Ask

In support of a Just Transition, consideration should be given to including criteria within public sector tenders to reward companies who demonstrate a reduction in their carbon footprint.

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Low Carbon Initiatives

In 2018, Fujitsu took the pledge with a cohort of other companies as part of the Business in the Community (BITCI) Low Carbon pledge, with the collective aim of reducing both fuel consumption in the provision of products and services and greenhouse gas emissions. We exceeded our own pledge to greatly reduce the company's carbon output. Having committed to lower carbon emissions by 50% by 2030, Fujitsu Ireland has dropped its carbon output by 60%, ten years earlier than the committed target.

This is part of a long-term effort to achieve net zero emissions in alignment with the COP21 climate change Paris Agreement. As part of a wider responsible business sustainability programme, Fujitsu is aiming to lower its environmental impact, including reducing CO₂ emissions to zero by 2050.

Among the steps taken to cut carbon emissions by 60%, Fujitsu focused key areas such as energy saving projects (e.g. replacing all lights with LEDs); ensuring all its energy providers supply 100% renewable energy; achieving zero waste to landfill; and maximising water efficiency.

The first Low Carbon Report by BITCI identified that pledge companies had decreased absolute carbon emissions by 42% between the baseline period and 2018. Collectively the signatories have successfully built on that progress in 2019, with a 52% reduction in absolute emissions between 2019 and the baseline year.⁴ This highlights how concerted action can lead to measurable impact across a wide range of sectors including energy, retail, professional services, pharma, transport and technology.

⁴ https://www.bitc.ie/wp-content/uploads/2020/06/Low-Carbon-Pledge-Report-2020_FINAL_v3.pdf page 14

The development of a nationally administered low carbon standard (or mark) overseen by a Government agency such as the EPA would be a valuable tool in seeking to encourage more companies to adopt similar low carbon practices. As consumers and customers become increasingly discerning and climate conscious, this mark would be a strong marketing tool for those who invest the resources required to achieve a demonstrable carbon reduction over 3-5 years.

Among the actions companies can take, Fujitsu's sees huge potential in the transition to cloud infrastructure and modern technologies as a means to enable a reduced carbon footprint.

**Fujitsu
Ask**

Fujitsu would welcome the development of a national carbon reduction standard / mark administered by a government agency, which could be awarded to those companies who significantly reduce their carbon over a 3-5 year period.

6. Investing in Technology to Enable Greater Digitisation including Government Services

As outlined above, Fujitsu is firm in its conviction that Human-Centric Innovation can be a positive force for good. This is perhaps most evident in the possibilities available in the delivery of public sector services.

The relationship between Government and its citizens is changing with service users expecting consumer-like experiences when they interact with Government, with increasing expectations that all services can be accessed online. It is not just younger users who have these expectations.

To begin to meet citizens' expectations, will require a reimagining of the whole end-to-end process across and between departments, anticipating proactively, even pre-empting citizen life events, protecting and sharing data securely.

Fujitsu believes that in the short-term, Government's digital focus should be on seeking greater collaboration across the public service; accelerating digital delivery of services; workforce planning and safety and an assessment and analysis of skills across the public service.

As a strategic supplier and provider of critical national infrastructure, Fujitsu has been working with governments globally for decades, helping to protect borders, ensuring the welfare and safety of citizens and more.

Furthermore, Fujitsu has a strong understanding of the trends which are driving societal changes for governments:

1. **Ireland's population is both increasing and ageing.** Under reasonable assumptions, the old-age dependency ratio – the number of retirees expressed as a fraction of the number of people of working age – is set to double between now and the mid-part of the century. This means that while there are currently around 5 persons of working age for each person aged 65 and over, by 2050 the equivalent figure will be around just over 2.5
2. **Greater demands for access to healthcare** and increased incidence of chronic conditions are having a major impact on the required expenditure on health.⁶
3. **Urbanisation** – Census 2016 has shown that of the overall increase in population between 2011 and 2016, 80% was concentrated in urban areas. If investment in infrastructure and services does not keep up with the inflow of people looking for a better life, then social, economic and environmental conditions decline – leading to slums, pollution, over stretched infrastructure and care systems.⁷
4. **Climate change** – The single greatest global challenge we face is to reverse the effects of the industrial age by changing behavioural patterns to create a sustainable way of living. Should we fail to act, and act effectively, the consequences are unfathomable.

These problems are becoming more severe and solving them must be a top priority. Below are some examples globally as to how governments are transforming their interactions with their citizens through digital technologies, aided by Fujitsu:

- In 2019, the government of Argentina announced a new digital driving licence, replacing paper and plastic cards with digital documents stored securely on users' smartphones. The service was created, from scratch, in just 65 days. Argentina is not the only country to do this. Finland for example also uses its digital driving licence as formal means of identity.

⁵ <https://assets.gov.ie/4147/101218131007-cdad7ec478c4467290c52008da8f536d.pdf>

⁶ <https://data.oecd.org/healthres/health-spending.htm#indicator-chart>

⁷ <https://www.cso.ie/en/releasesandpublications/ep/p-cp2tc/cp2pdm/pd/>

- Denmark has a cultural tradition of expecting efficiency and cost efficacy and it currently leads the United Nation's e-Government rankings⁸ (Ireland currently ranks 27th). Based around a central database or CPR-register, it is mandatory to use digital tools for citizen communication. The result is that Denmark has the highest take-up of digital public services in the OECD. Even for those with no or low education levels (the "digital divide"), the take-up of digital services is 60%. Comparing that to the UK for example, on 10%.
- Estonia is probably the best-known example globally for e-Government transformation. Starting from scratch as a new nation in the nineties, Estonia put technology at the heart of its government services. It has done this not because it had the money to invest but for the exact opposite reason. Estonia used technology to save money in how services were created, using technology as a platform for building "invisible government" - whereby if you have the right to receive anything as a citizen you never have to apply for it.

Here is an example of a state that has successfully digitised as a means to reduce expenditure through investment.

CASE STUDY

Estonia – Building a Digital State

A state renowned for successfully mastering the technology needed to digitise their public service, achieving the ultimate Digital Government goal of ending bureaucracy and building an end-to-end digital nation from birth.

Fujitsu has been a major player in a number of critical Estonian public sector digitalisation projects including the main contractor for the X-Road connecting Estonia and Finland.

As a key partner to a number of government departments, Fujitsu has been instrumental in the development of many key solutions which enable the country to operate as a completely digital state, including:

- E-Residency
- VISA Register
- Border Control System
- Police Case Management
- Educational Solutions
- E-Health Information Systems

Since its emergence as an independent nation in the 1990s, Estonia has led the world in national digitalisation programmes.

The spark for digital Estonia was lit on August 20, 1991 when Estonia declared independence from the Soviet Union. The new government then found itself in the unusual position of having to construct a new nation – including a civil service and bureaucracy – from scratch. Digital systems were seen as the only conceivable route to achieving that. The state hasn't used any paper documents in the public sector for 10 years.

The first of Estonia's electronic services to be deployed was e-Tax, in Estonia, the average length of time it takes for a citizen to declare tax is three minutes per year. What makes all this possible is an information coordination platform called X-Road. X-Road was initially deployed in 2000 and has been repeatedly updated since. Currently, version 6.0 is in use. In 2018 alone the X-Road system that links public and many private databases throughout the country saved about 2,400 person years.

⁸ [https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020%20UN%20E-Government%20Survey%20\(Full%20Report\).pdf](https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020%20UN%20E-Government%20Survey%20(Full%20Report).pdf)

Below are just some of the technologies which we believe would have a significant and cost-effective impact on the operations of the Irish civil service and Government.

1. Intelligent Automation / RPA

These technologies have immediate uses in adapting to changing ways of working by automating data processing and avoiding having users sign-in to multiple systems independently to complete a single process, reducing time spent on repetitive tasks. Specifically, for the public sector, RPA has applications for such tasks as fraud prevention, claims administration and patient registrations. Benefits include:

- Reduced operational costs
- Increased resiliency
- Faster processing
- Reduced errors as a result of manual processing
- Ability to focus resources on more productive activities
- Achieve workload reduction
- 30% of process are suitable for RPA
- 50% of processes are suitable for automation by adding AI
- Performance is improved by 80% from automated processes

2. Applications to the Cloud

Moving applications to the cloud using a robust migration plan including extensive testing can mean huge benefits for organisations and its users while reducing spend by 30%. A successful migration to the cloud will mean:

- Automated application deployments and data backups
- A reduction and streamlining IT infrastructure costs
- Continually available infrastructure
- Flexible, scalable and resilient services
- Encouraged collaboration

3. Quantum inspired computing

One of the solutions where there is huge potential for solving large scale problems such as those faced in the civil service is through quantum inspired computing. These can solve large-scale complex combinatorial optimisation problems in near real-time. Delivered as an end-to-end service, it can be deployed anywhere from cloud to on-premises. These products are fully compatible with existing architectures and fit into existing organisational workflows and processes. Some of the applications include:

- Optimising routes to destination and fleet management for transport organisations and field-based organisations to reduce time to travel and increased productivity
- Developing and optimising human resource planning according to staff capabilities, availabilities and attendance conditions, allowing for flexible resourcing across multiple departments
- Optimising factory production lines, inventory or warehouse material allocation in real-time based on production requirements and demand
- Portfolio and Inventory risk optimisation and allocation of funds near real-time to ensure minimum impact due to external factors like economic crisis
- Accelerating new drug or material discovery with molecular similarity search in seconds
- Planning future development, running scenarios and changing multiple variables

4. Multi-Cloud (using Multiple Cloud-Computing Solutions)

A further area where digitisation can transform government services is via the implementation of Multi-Cloud. Multi-Cloud Management is the ability to manage multiple clouds from a single, central environment. Such management solutions are frequently called Multi-Cloud Technology or Multi-Cloud Management Platforms and will reduce spend by 20-30%.

The benefits of a Multi-Cloud approach are:

- Quickly scale your IT infrastructure to respond to new needs – much faster than procuring and implementing on-premises solutions
- Rapidly resolve business problems with working solutions and increase productivity and efficiency
- Reduce your development backlog and reduce time-to-market for consumer applications
- Scalable, secure and cost-effective application development, putting consistency and reuse first
- Reduce your technical debt, drive innovation, and improve your users' experiences
- Support your strategy using MXD Services, integrated with cloud hosting and deployment, DevOps, CI/CD and automated testing services
- Develop progressive or reactive web apps, meaning applications are accessible on any platform and device, including mobile
- Enable temporary services to be activated and paused (e.g. Census, exam result notification, temporary welfare provisions)

Most crucially a Multi-Cloud approach is highly efficient and can generate significant savings:

Retain	Keep existing applications on their current platform, manage and optimise	20%-40% TCO savings
Retire	Application not strategically required going forward, clean up data, application and infrastructure	50%-80% TCO savings
Rebuild	Build a new 'Cloud Native' application from scratch leveraging latest tools and frameworks	20%-40% TCO savings
Rearchitect	Significant architectural redesign to leverage multi cloud target environments	30%-50% TCO savings
Rehost	Application, data and server 'lift and shift' to the target cloud platform	20%-30% TCO savings
Replatform	Move application and data to a different target technology platform, application architecture remains as is	20%-30% TCO savings
Repurchase	Replace existing applications with standard COTS packages or SaaS	20%-40% TCO savings
Refactor	Internal redesign and optimisation of existing application	30%-45% TCO savings

*TCO savings = Total Cost of Ownership (an estimate of all the direct and indirect costs involved in acquiring and operating a product or system over its lifetime).

Additionally, there are significant (34%) operational savings to be made through a reduced headcount for maintenance and new development infrastructure savings.

Multi-Cloud Case Study

A successful example of Fujitsu's implementation of a Multi-Cloud approach can be seen in a recent project carried out on behalf of the UK Police and Courts Service.

Context

The UK court system is overburdened, as it currently has to deal with all levels of offences, including minor and petty crimes which do not warrant heavy sentencing.

Police still rely on paper-based statements and evidence to charge offenders, and must return to police stations to book offenders.

The National Police Chief's Council (NPCC) wanted to create a simple, credible digital process to deliver proportionate out of court disposals.

This process needed to consider the needs of the victim, the offender and wider society, and seek to reduce reoffending.

Our Response

Fujitsu created an initial set of screens with design partner Nodes, in just 5 days, via the Fujitsu Novo Service. These were tested with police officers, who gave very positive feedback.

The project was then green lit internally for a proof of user experience development: working applications, with all proof of value features, that functions without connecting to any live police systems.

Key proof of user experience features included the ability to propose and authorise disposals, and support for the end to end process from case creation through to resolution.

Development of this application using the OutSystems Platform, with expected completion at the end of June 2020, has taken just 6 sprints.

5. Remote Working

The trend to more flexible working options including remote working is on a heightened trajectory. As this transformation of the civil service takes place, technology (hardware and software) will reduce costs and improve productivity e.g. a shift to a cloud managed workplace. This can further be achieved through good implementation of collaboration tools; workplace automation; securing the remote workforces; and a focus on end-user satisfaction.

As recognised by Gartner, Fujitsu is a global leader in enabling remote working. Fujitsu has recently helped several public sector organisations move quickly to remote working by providing IT Services to enable staff work remotely. For its part, Fujitsu was in a position to transition its entire workforce to remote working overnight as well as supporting many of its client partners in achieving the same.

Implementing and supporting remote working guidelines would assist both private and public sectors as they consider and set strategies to include remote working as an option for future flexible workplaces. A further benefit is the rebalancing of space in urban areas where there has been a shortage of sufficient scale commercial property availability and, furthermore, a more flexible future workplace allows for staff to work outside the main urban areas, therefore reducing rental prices and reducing urban congestion.

To achieve this, **incentives for remote working and the increased proliferation of remote working hubs should be considered**. Furthermore, this must be done in parallel with the development of appropriate infrastructure to ensure strong and secure access to connectivity. Business must be supported in enabling their staff to make this transition.

Additionally, while working from home, employees may incur costs including heating, electricity and broadband expenses. Moderate relief is currently available through employer contributions towards these costs, or a claim for tax relief at the end of the year. This refund is based on:

- The number of days worked from home
- The cost of the expenses
- Revenue's agreed rate for calculating the cost of running a home office

Revenue's rate for the cost of running a home office is 10% of the total cost. This means that you can claim 10% of the total amount of allowable utility bills against your taxes. This is only available for the days that you work from home. To encourage more remote working, **Government should consider increasing this allowance and make working remotely more attractive.**

Without being able to connect to the office virtually, working from home will not be possible. Access to high-speed broadband remains an issue for more rural areas as we see a significant increase in video conferencing and other programmes that demand high-speed internet. The rollout of a number of gigabit hubs in rural areas has been a significant success in towns such as Skibbereen, Cavan, Drogheda and Sligo.⁹ The roll out of similar high-speed hubs nationwide is essential to enable the proliferation of remote working. The importance of digital hubs was also been restated during the current pandemic in providing ready-made business environments and communities for remote workers from small and large enterprises. These hubs can also help counteract the risks of worker isolation and provide positive environmental impacts.

Furthermore, Fujitsu welcomes the National Cyber Security Centre's Advisory on working from home.¹⁰ To raise awareness of the heightened threats that remote workers now face, **a public information campaign should be rolled out to assist businesses in adapting to greater remote working.**

Fujitsu
Ask

Encourage measures which enable dynamic, suitable and secure remote working, including increasing tax relief for remote working, broadband infrastructure investment, investment in remote hubs and a public information campaign to mitigate against the heightened cyber threat landscape.

Similar efficiencies can be derived within the private sector across a range of industries. One sector of vital importance to the national interest, as highlighted during the heightened restrictions of the pandemic, is the retail sector. In addition to the above, retail stands to benefit hugely from greater digitisation.

⁹ <https://www.irishtimes.com/business/technology/employees-working-remotely-due-to-coronavirus-may-face-online-congestion-1.4199740>

¹⁰ <https://www.ncsc.gov.ie/pdfs/WFH-Advisory.pdf>

Greater digitisation of the retail sector

The COVID-19 experience has demonstrated the importance of the critical retail sector being able to adapt to new ways of working and providing more digital services from online marketing and sales to frictionless in-store shopping. As the pandemic develops, retailers must be given supports to ensure that they can continue to operate and deliver high level and secure customer experiences.

Retail is the life blood of the economy and a hugely important sector in terms of jobs, exchequer returns and in the provision of essential goods and services. Both online shopping and in-store experiences must be protected to ensure these companies' survival for the duration of the pandemic and beyond.

Fujitsu has considerable expertise in supporting these activities through the likes of back end support for online shopping and contactless checkout facilities in store.

For example, platforms such as Fujitsu's Marketplace which allows customers to search for the items they want, check availability, purchase online and collect in store enabling less contact time in shops, while providing real-time stock visibility.

Furthermore, integration of online purchases and delivery logistics is critical for many small businesses; we have seen so many restaurants move to online channels as a supplement to their table service (this has closely integrated with delivery firms and loyalty programmes). This trend is likely to be with us for a considerable amount of time due to the requirements of social distancing and vital to the survival of the sector.

**Fujitsu
Ask**

To counter COVID-19 and support the vital retail sector, mechanisms for frictionless shopping including online retail experiences, contactless shopping and omni channel purchasing and ordering should be incentivised.

7. Targeted Education and Skills

Fostering Digital Skills to alleviate the 'war for talent'

The changes required to support a Just Transition will likely cause displacement of some workers and the development of a new skill set for other workers. To enable these changes, a dynamic digital skills strategy and its implementation will be vital to ensure the next generation of workers have the requisite skills to secure employment in a transitioned economy in a low carbon future.

The rate of digitisation has meant that there is a worrisome digital skills gap and a talent shortage in the technology sector. A [study](#) published in April 2020 by the Code Institute estimates that up to 12,000 ICT jobs are not being filled currently in Ireland due to the lack of available skilled workers. This shortage has created a so-called 'war for talent' resulting in high wages and companies importing workers to bridge this gap. **Fujitsu would welcome all measures which seek to close the digital skills gap in key areas of human centric design, security, data science and IT architecture.**

Fujitsu believes that creating a critical mass of skilled ICT workers will be a crucial building block in the process of transitioning to a low carbon economy while returning the country to full employment. To this end, Fujitsu welcomes the intention of the Programme for Government to develop a Green Further Education and Skills Development Plan. Based on our experiences, there is a shortage in the Irish labour market for employees with the requisite skills in security, data science and IT architecture.

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Fujitsu would welcome all measures which seek to close the digital skills gap in key areas of human centric design, security, data science and IT architecture.

Government should seek to expand the number of Top Teams within the Department of Business Enterprise and Innovation to include other specialisms within the ICT sector. This could include security, data science and IT architecture.

Harnessing new technologies

Fujitsu welcomes the acknowledgement in the Programme for Government that digital technology will play a leading role in a Just Transition to a greener society. Only through positive, human-centric digital transformation can we create a resilient and sustainable economy which will enable us to face the many societal and environmental challenges that are now posed. The National Digital Strategy must be ambitious in this regard.

Fujitsu believes the emphasis of this strategy should be on developing skills and infrastructure that will allow the country to capitalise on developments in AI, cloud computing, analytics and block chain. This will allow both the public and private sector to achieve heretofore-unknown efficiencies, resilience and collaboration. These advantages are not confined to large organisations but can similarly benefit SMEs and small businesses through developments in self-service portals; advanced payment mechanisms and integrated logistics, to name just a few.

How we leverage high-performance computing power, the Internet of Things, 5G Networks, Cloud Computing, Big Data, Artificial Intelligence, Blockchain and no code / low code solutions – to name just a few areas – will be vital to how we successfully make a Just Transition. That said, Fujitsu is keen to stress that the emphasis to implementing technology must be human-centric and done in a way which develops and maintains high levels of trust – a key determinant in technological adoption. This should be backed up by digital skills development in order that citizens may readily adopt e-government measures.¹¹

Research carried out by Fujitsu in 2019 ([Driving a trusted future in a radically changing world](#)) has shown that the biggest barrier to technological adoption among the Irish public and its business leaders is a lack of trust. Although a quarter of the public considers technological changes to be positive, nearly as many feel nervous about what's ahead. In this regard the rate of technological adoption could be inhibiting further change. As we look to increase this rate of digitisation even further, to react to the challenges of COVID-19 and kickstart a green recovery, trust between public and private organisations and service users will be of paramount importance.

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The new National Digital Strategy must set out strategic goals and credible pathways to leverage the possibilities of IoT, 5G, Cloud Computing, AI and Blockchain while keeping the end user and sustainability central to the strategy and its implementation.

¹¹ <https://www.siliconrepublic.com/careers/accenture-digital-divide-ireland>

8. Fujitsu's Vision for Technology in Ireland

Fujitsu's ambition in Ireland is to be the technology partner of choice for the Irish government and the country's leading industries. Our approach to these partnerships is to collaborate through co-creation, understanding the unique challenges of every organisation and providing digital solutions, while building and maintaining interdependent trust. Co-creation means bringing different parties together e.g. industry and/or public sector organisations with a trusted technology partner in order to jointly and interactively produce a mutually valued outcome.

We believe that responsible corporate growth is closely linked to the success of society as a whole. By aligning responsible business and society, both will benefit. This, we believe is the only way to overcome the many challenges we now face, realise sustainable growth and deliver a green recovery. Technological innovation is the enabler which will drive this.

Planning and implementation are key. In our experience, technology projects fail when organisations and their technology partner seek to digitally transform too much too quickly. Rather, successful digital transformation occurs when smart, thoughtful and incremental progress is made, managed as a change project. That said, some incremental steps are bigger than others, for instance, introducing AI technologies.

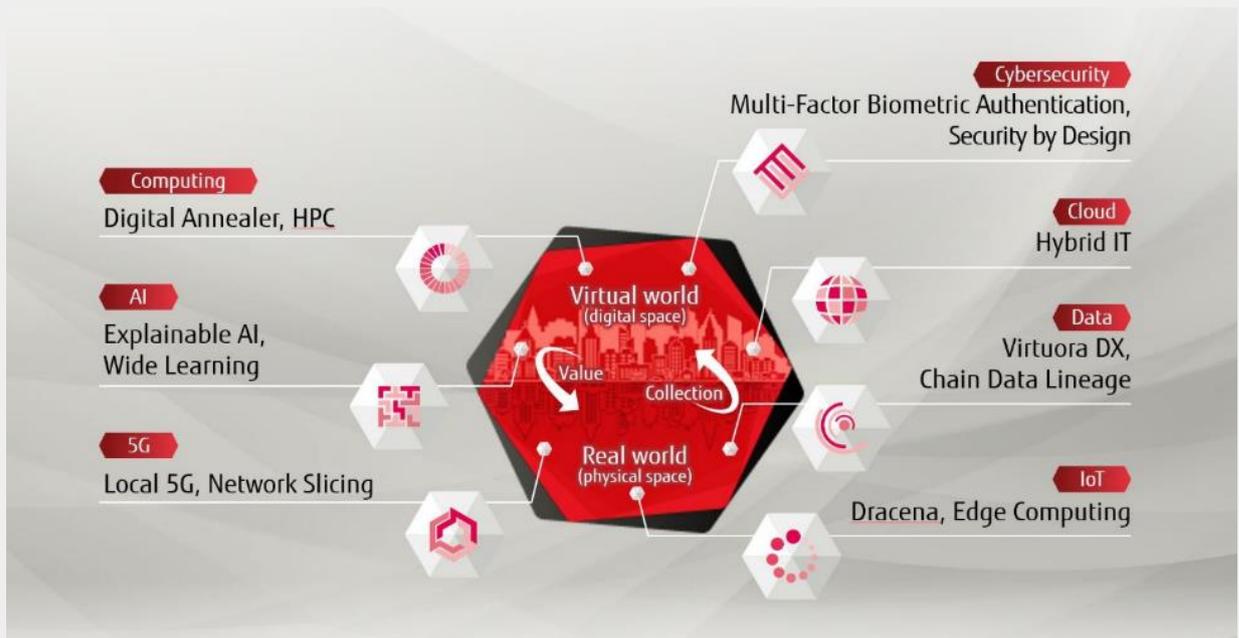
AI technology has advanced rapidly and is now a key part of many products and services from physical things like cars and robots to online services. These intelligent things will soon be connected through 5G networks to work autonomously in a distributed manner.

There are numerous reports which have sought to estimate the number of jobs that will be displaced by the widespread adoption of AI. These range from the worryingly negative to far more positive outlooks. For instance, the World Economic Forum has estimated globally that while 75 million jobs will be displaced by AI, the change will in fact generate 133 million new ones by 2022.

A determining factor in whether AI will be a positive or negative influence on the economy is how well government, industry and academia collaborate to prepare workers for this transition.

It is essential that we use technology-based innovation to deliver trust in this new world. Fujitsu can help achieve this in the following ways:

- To have confidence in AI, through our explainable AI technology
- To solve problems arising from the complexity of large-scale problems, using our Digital Annealer technology
- To optimise organisations and cities in real time by using 'digital twins'
- To embed trust in the end-to-end ecosystem, through distributed ledger and security technologies



AI is set to become fundamental to the operations of every industry. It is a technology that offers great promise not just for business improvements but for human-centric innovation. It utilises relevant data to automate and amplify human capabilities, eliminate mundane and repetitive tasks, generate additional revenue streams and enable accurate unbiased decision making.

Today, it is increasingly clear, especially at this time of crisis, that data generation is rising - making real-time information and response vital to business existence. At Fujitsu, we believe that the drive towards a data-driven transformation strategy with the successful implementation of AI and data science will become critical to business growth and organisational efficiency going forward. Working together we can help you to develop an AI strategy to overcome the challenges you face in:

- Developing an integrated foundation to obtain all relevant data
- Understanding the right skill sets needed
- Executing AI in a phased manner, transforming organisations without disruption
- Gaining visibility of the benefits and return on investment

9. Conclusion

Fujitsu would urge that the Government seize the opportunity presented in this, it's first national budget, to address the national economic recovery, while balancing the pressing need for positive environmental and societal outcomes.

This can be practically achieved by the identification and implementation of 'appropriate' innovation using a consolidated procurement strategy which will deliver cost efficiencies across the public service, i.e. directed innovation, undertaken in a cost-effective way.

By embracing such an approach and aligning it to a national technology strategy, enforced new ways of working can thrive, delivering huge societal benefits for employees and communities around Ireland.

As noted throughout this submission, Fujitsu is eager to be a collaborative partner to Government and its agencies as Ireland continues on its digitisation journey.

Further Reading

- [Fujitsu Technology Service Vision](#)
- Digital Annealer Applications:
 - [Digital Government Solutions](#)
 - [Retail](#)
 - [Financial Services](#)
 - [Transport](#)
- [Citizen Z](#)
- [Driving a Trusted Future in a Radically Changing World](#)
- APPENDIX 1: Case Studies

10. APPENDIX 1: Case Studies

1. Care of the elderly *Case Study*

Fujitsu is helping White Hat House in Japan, ensure its elderly residents' safety, while reducing costs using Fujitsu IoT Remote Monitoring Station.

Overview

White Hat House currently operates three facilities in Kushiro City: a day care service, group home, and group living facility. It also runs family nursing care lessons and community food halls. It wanted to be able to watch over residents 24 hours a day, 365 days a year, without having to pay excessive costs. It needed a surveillance system that respects residents' privacy and allowed for immediate response in case of emergency, in particular those residents suffering from dementia.

Our Solution

The main advantage of Remote Monitoring Station is that it uses sound. There is no need for staff to knock on residents' doors, nor is it necessary to watch them with surveillance cameras. The residents only receive a call from the call centre when an abnormal noise is detected. This means their privacy is protected.

FUJITSU IoT Solution UBIQUITOUSWARE Remote Monitoring Station was installed in residents' rooms to collect sounds of them moving around and talking. A designated system based in the cloud analyses this sound data, and if any abnormalities are detected, the resident receives a phone call from a nurse at a call centre. The call centre is staffed 24 hours a day, 365 days a year.

Proof of Concept

The remote monitoring system is successfully operating since 2017 and has cut night-time facility operation costs by 80% using acoustic sensors. This ensure residents' privacy is protected.

2. Drug Discovery Case Study

Fujitsu is currently engaged in a drug discovery programme which will significantly reduce the time it takes to develop medical molecules.

Context

With a 12-15 year drug development cycle costing up to US\$2bn*, it's essential the pharmaceutical industry applies disruptive innovation faster than ever before. Diseases can spread more rapidly, as we've seen in 2020, putting greater pressure on the need for faster and better drugs, to cure possibly life-threatening diseases.

Our quantum-inspired computing brings together pioneering technology to significantly improve the speed and quality of small molecule lead discovery - delivering novel molecules in 7 weeks, reducing the timeline for drug discovery to approximately 8 months.

The approach taken with this innovative platform is to scan for, and ultimately identify, the lead de novo molecules needed to develop drugs to cure diseases having the most significant impact around the world.

Overview

A novel solution combining quantum-inspired technology, machine learning and Quantum Mechanics / Molecular Mechanics (QM/MM) simulations improving both speed and chemical diversity in designing novel lead candidates. This significantly impacts early stage drug discovery by reducing typical timelines from 24-48 months to approximately 8 months. Molecules will be taken straight to in vitro testing without cycling through the usual drug modelling/ in vitro research loop. Additionally, the quality of leads is improved by screening a far larger targeted chemical space of over 1 billion molecules. The outcomes will be patentable, novel molecules that have optimised drug-like qualities, low toxicity, synthesizability, and are biologically active.

Our Solution: How does it work?

1. The platform identifies lead molecule candidates from a targeted, diverse virtual library of several billion molecules and assesses their quality.
2. Leads are evaluated using the structural information of the pharmaceutical target and a set of physicochemical constraints, such as ADMET.
3. The platform leverages an annealing based molecule filter harnessing the computing power of Fujitsu's Quantum Inspired Technology.
4. The output is then refined and ranked with Polarisqb's machine learning algorithms for physicochemical properties, and QM/MM simulations for binding affinities.
5. The final output is a short-list of high quality molecules prioritised for synthesis and in vitro testing.

Dengue virus as a Proof of Concept

Though Dengue Fever outbreaks are a recurrent theme in most tropical countries with c.100 million affected every year, the first case of Dengue contracted in the United States was discovered in Miami this year, and based on predicted climate changes, the mosquito vector of Dengue is moving toward unprotected and new populations. We have used our technology to study the Dengue R NA-dependent RNA polymerase protein, and optimise novel inhibitors, with the aim of curing Dengue in both developed and developing countries.

3. Local Government *Case Study*

To comply with the national digitisation strategy, Esbjerg Municipality deploys Fujitsu Prisme, enabling better visibility, streamlined workflows, and flexible support.

Overview

More than 115,000 people live in Denmark's Esbjerg Municipality, which covers an area measuring 750 square kilometres. On a daily basis, a 10,000-strong workforce attends to the municipality's duties through 350 decentralised institutions. In recent years, local authorities in Denmark have had to comply with a joint public digitisation strategy for innovation and efficiency using digital processes. Local authorities are therefore keen to introduce efficient processes.

Our Solution

Esbjerg Municipality turned to Fujitsu Prisme, which is based on Microsoft Dynamics AS, and includes modules for Finance and Resource Management, Debtors, and Management Information, as well as eCommerce for local authorities and regions in Denmark. As an example, previously, heads of institutions would print reports and invoices to get an overview of finances. Now Prisme gives them everything they need, plus the ability to add and save comments to entries. Auditors can track things the same way. This is a tangible efficiency measure.

Proof of Concept

The Esbjerg Municipality is currently benefitting from improved overviews and financial management potential; simplified and streamlined work processes; flexible support of management policies, procedures, and organisational structure.

4. Logistics Case Study

Fujitsu improves the management of European aid and subsidies for the Department of Agriculture, Fisheries and Sustainable Development with a modular microservices architecture.

Overview

Centralise and standardise the aid and subsidy management systems for the European Union Common Agricultural Policy (CAP), reducing the large number of current processes and implementing a new, modern way of working that allows rapid, integrated development of new solutions.

Our Solution

Launch of a flexible development service based on an adaptation of the Agile methodology, creation of a modular architecture of reusable microservices managed via an integration bus and the use of new technology components and DevOps.

- Use of DevOps for continuous application development
- Design of a centralised Aid Management System for European Union (EU) funds to streamline administrative tasks
- Optimisation of development times and costs
- Permanent availability of a team of Fujitsu experts with up-to-date knowledge of the latest technology tools and trends

Proof of Concept

Following a joint process between the different technical areas of the Fujitsu IT Service and Fujitsu staff for defining and adapting the working method, the factory began to develop the first components of the centralised Aid Management System, adapting to the plans and needs of the Department of Agriculture. The project, which will be gradually developed over the duration of the contract, will make the administrative procedures that must be followed by farmers and agricultural organisations for supporting aid simpler, easier and faster, through the design and standardisation of applications and procedures. One of the first projects to be developed and launched was the Transport Transit Document, which accredits the origin and destination of agriculture products. This document makes it possible to organise and control transport, improve security and prevent theft and illegal sales during transfers from farms to warehouses or first points of sale.

Strategic

Flexible

Trusted

Focused

Dependable


FUJITSU

shaping tomorrow with you

Reliable

Enabled

Resilient

Delivered

Proven