

INSPIRE AND ORCHESTRATE:

INNOVATION-DRIVEN GOVERNMENT (IDG)

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WORLD GOVERNMENT SUMMIT



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EXECUTIVE SUMMARY

Around the world, governments have successfully nurtured innovation in the private sector, thanks to smart policies and strategies, ranging from export subsidies to incubators to feed-in tariffs that promote emerging technologies like renewable power. Forward-looking public servants have proven that the state plays a catalytic role in innovation.

Yet a more significant opportunity is now being seized: governments are themselves participants in the innovation ecosystem. Their procurement policies, quality of service provision, and adoption of technology, all shape the innovation performance of the wider economy. Governments are now moving from being enablers of private sector innovation, to co-contributors, participants and even pioneers of innovation.

We call this approach **innovation-driven government (IDG)**. By this, we mean that

innovation becomes an organisational imperative for the public sector itself, rather than exclusively the domain of the private sector that governments only influence remotely. There are many examples of the public sector redefining its role in this way – in Estonia, Singapore, the UAE, Sweden, Chile and the UK, to name a few. Here, we explore why IDG is emerging and what it can achieve, focusing on six areas that together make up a government that can advance its own innovation agenda.

Below are the six facets of an IDG within the wider innovation ecosystem. These can be mined from other countries' experiences and shaped to fit the specific ambitions and needs of each country.

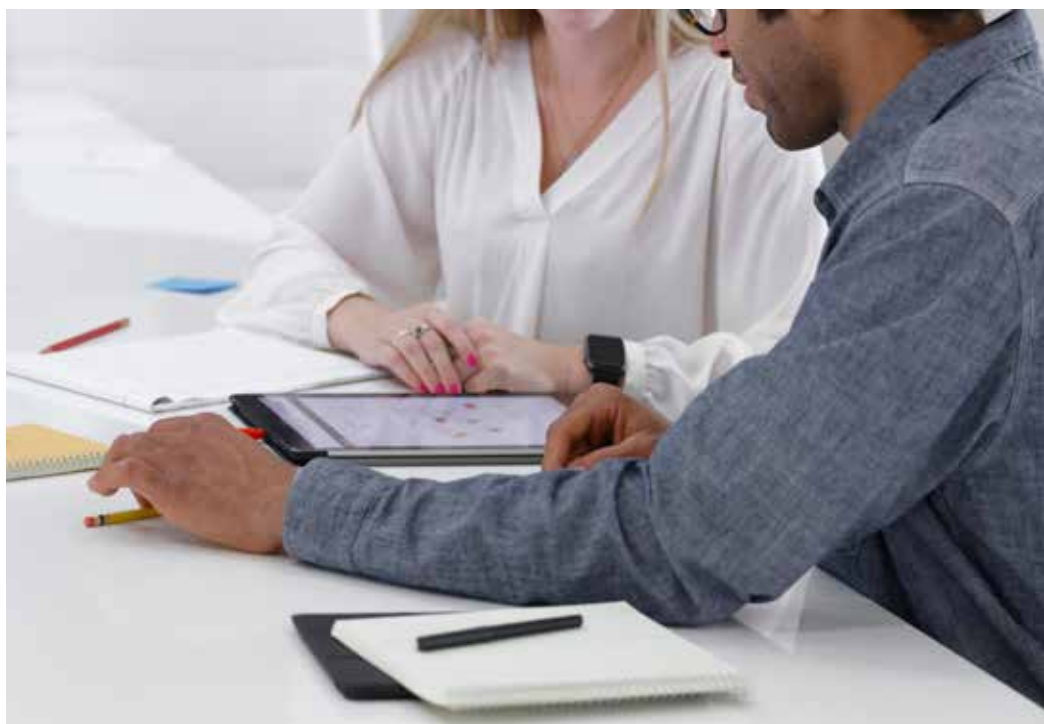


COLLABORATION AND ENGAGEMENT

A collaborative mind-set across government entities and with non-government partners is a key feature of IDGs. By collaborating and engaging with the private sector, governments open innovation frontiers, using their own unique challenges as raw material for more innovative approaches. These can then feed back into the innovation ecosystem. Governments are also exploring novel forms of public-private collaboration, like social impact bonds and accelerators, to solve social challenges in new ways. To effect the desired change, governments will also need to remove barriers between their various departments and unify them in the service of this cooperative effort.

CULTURE, PEOPLE AND TALENT

IDGs have employees who are creative problem-solvers, working in a culture that allows them to experiment and innovate. Building an innovative culture means putting in place incentives and performance structures that reward experimentation. Novel approaches include awards and recognition schemes and regulatory ‘sandboxes’. Governments are also driving innovative thinking in the workforce by increasing diversity, and enabling more interaction with innovative companies through ‘brain circulation’ initiatives like secondments and sabbaticals. At the more foundational level, the education system can also support public sector innovation, by teaching critical thinking and creativity to the next generation of public servants.



STRATEGY

IDGs embed responsibility for innovation across the full range of government departments. At the strategic level, innovation becomes part of a whole-of-government approach, helped by guidance from the top that pushes government agencies to work in new ways. It can also entail creating specialised agencies that work to embed innovation across government processes and practices in a holistic way.

INVESTMENT IN R&D AND DIGITAL INNOVATION

Rather than only using digital technologies to take government services online, IDGs are spotting new public-sector uses for emergent technologies. Blockchain, for instance, is now being used in cross-border trade approvals, voting, corporate registration and shareholder listing, while artificial intelligence is being used to tackle various challenges, including transportation. By embracing innovative technologies, governments also provide confidence for the private sector to venture into areas where the market is still uncertain, and regulation is still being written.





PROCUREMENT

The public sector is the biggest buyer of goods and services in most economies. IDGs don't just procure – they establish a need and challenge the private sector to solve it in a new way. Governments, therefore, become a launching customer that give the private sector the incentive to commit R&D efforts or increase investment in an area that needs the kind of scale that only public contracts can provide. Beyond procurement, governments are also entering into corporate ventures with innovative companies in a rethinking of public-private partnerships.

economics, another innovative research agenda, has become part of the process of policy design and testing in contexts as varied as the UK, Singapore and Saudi Arabia.

As governments develop these six IDG facets, they shift from incentivising and encouraging innovation in the private sector, to being fundamental participants, driving and shaping the innovation ecosystem. Their success in driving innovation is a direct result of being innovation-driven themselves.

INNOVATION PROCESS

IDGs develop an innovation process to create new approaches to policy design and implementation. 'Design Thinking', for instance, brings an R&D methodology popularised by the tech sector into other organisational contexts, such as new approaches to welfare payments. Behavioural



GOVERNMENT 4.0: BUILDING AN INNOVATION IMPERATIVE

During much of the 20th century, governments - especially in the US and Europe - played a critical role in pioneering innovation, often under the pressures of war. Government agencies developed foundational technologies in computing and the Internet, while driving advances in medicine, space travel and other domains.

This role shifted toward the end of the century. Margaret Thatcher, in the UK, and Ronald Reagan, in the US, turned attention away from interventional industrial policies in their own countries and focused on market liberalisation. A consensus emerged in both developed economies and emerging markets that governments should play a more minimalist role.

As a result, innovation came to be an activity of the private sector. However, private companies, from IBM to SpaceX, continue to build on ideas and tools that were invented by government entities such as Defence Advanced Research Projects (DARPA), the National Aeronautics and Space Administration (NASA) and the European Organisation for Nuclear Research (CERN).

Over the last decade, based partly on the East Asian experience - especially that of China - there has been a growing appreciation of the constructive role that governments play in enabling innovation in the private sector. Many governments recognise innovation as key to industrial transformation, technological change and job creation. A wave of 'heterodox' economists like, Ha-Joon Chang¹ and Mariana Mazzucato², have argued convincingly that governments play a central role in driving this industrial change. China is the most recent proof. Many of its most promising technology sectors today, from electric vehicles to artificial intelligence, have benefited from state interventions ranging from funding to policy incentives.

Yet, this discussion about the government's role in supporting innovation, while a welcome corrective on previously simplistic ideologies that suggested governments should stay out, could go further still. The question asked is usually, implicitly or explicitly: should the government help the private sector to innovate and if so, how? Growing evidence now shows that, in many contexts across the world, from rich nations to developing ones, governments are increasingly seeing innovation as a core component of their operations.

BEYOND GOVERNMENT-DRIVEN INNOVATION

Many government policies and programmes have been rolled out to nurture private-sector innovation, but this government-driven innovation regards the state as responsible for supporting innovation in the private sector. In this view, innovation depends on how and whether governments intervene in the economy to stimulate private sector companies to do things they are not incentivised or able to do alone. Governments may, for instance, have a specific agency or cluster of innovation-focused public servants who spearhead policies and programmes.

Many governments are thinking about innovation in a more ambitious way. In addition to supporting the private sector, governments are looking at ways in which they can drive innovation through their control over factors like procurement, recruitment and public service technology. Governments benefit by adopting this holistic approach, in which innovation is the foundation and culture of the government itself.

This goes beyond conventional and newly popular approaches like 'e-government' services. It involves a more ambitious agenda to adopt new ways of working. From using blockchain to quicken trade, to re-designing institutions and cultures in the public sector to favouring and rewarding experimentation, this is the IDG approach.

IDG involves using procurement to drive innovative responses to public service needs, and taking more adventurous approaches to policy design, such as using randomised trials to test-drive policy ideas and building regulatory 'sandboxes' to see how new technologies can play out in simulated environments.



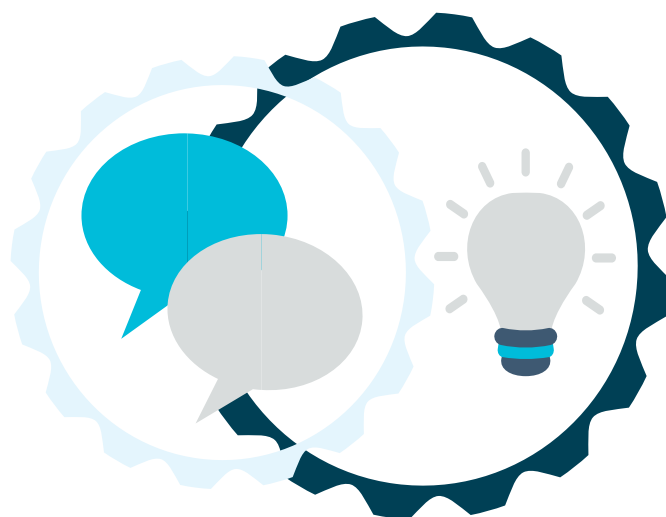
THE CASE FOR INNOVATION-DRIVEN GOVERNMENT

IDG reconceptualises government, from being an enabler and a supporter of the innovation ecosystem to becoming a full and fundamental participant, whose choices influence the wider innovation performance of the economy. This re-conceptualisation creates a virtuous circle. By embedding innovation internally – in culture, institutions and processes – governments create internal value that will positively affect external value creation, and this contributes to building a sustainable innovation ecosystem rather than just enabling innovation. As a participant in innovation, governments can sustain, scale and continuously improve their contribution to the ecosystem.

The IDG approach creates considerable value in three areas: for citizens, for the economy and for better policy-making. For citizens, there is a vast improvement in efficiency and service provision. The less time people spend navigating public services, the more time they have for work, for family life and for their health and well-being. Citizens are used to interacting and transacting with banks and retailers on mobiles and online, with minimal friction. They want the same from

their governments, whether it's paying taxes, voting, accessing medical records or setting up a business.

From an economic perspective, an IDG creates value by increasing investment flows, as globally mobile entrepreneurs and companies opt to put down roots in countries whose governments share the same values, ambitions and culture. As many of the most influential companies are now in the technology sector, physical location is an ever-smaller factor to location decisions. Countries, regions and cities with IDGs will attract more of those companies.





Lastly, from a policy-making perspective, the IDG approach is crucial to solving the social, economic and environmental challenges that affect all countries. Take climate change, which is already affecting a very diverse group of countries. While low-lying nations are particularly affected, many countries face growing threats including desertification, storms, floods, and unpredictable rainfall – while the world faces an increasing number of climate-related refugees.

Tackling these climate-related challenges calls for innovative policies and programmes to adapt to the new realities and drive the transition to greener growth models. It also requires fundamental re-thinking of policy at a national and international level, leveraging new agricultural technology, data analysis and technologies like drone-enabled humanitarian responses. More innovative financial instruments, such as the World Bank's 2017-launched disaster bonds³, are also in demand. Innovation today is more about new business models and mindsets that leverage digital technology, rather than the technology itself.

In the private sector, for example, Apple's approach was to create devices that pull the consumer into a content ecosystem in which each part, from the iPhone and iPad to iTunes and the apps library, reinforced and monetised all the others. The innovation of sharing economy companies such as Airbnb or Uber is to use smartphones, GPS and 'social trust' dynamics to allow people to share everything from cars and apartments to power tools. The technologies themselves are sophisticated, but it was the model - and the contrarian insight that people would place considerable trust in complete strangers if technology could be facilitative - that was the true innovation.

Governments from Estonia to Chile, Singapore and the UAE are now embracing a similar transformation. In doing so, they are playing a key role in unleashing more innovation in the private sector.

SUCCESS FACTORS FOR INNOVATION-DRIVEN GOVERNMENT

It is simple to state the case for IDG, as many governments and public servants are enthusiastic about new ideas and approaches. Realising this transformation requires ambitious efforts in which the right structures are in place to encourage innovative thinking and practices.

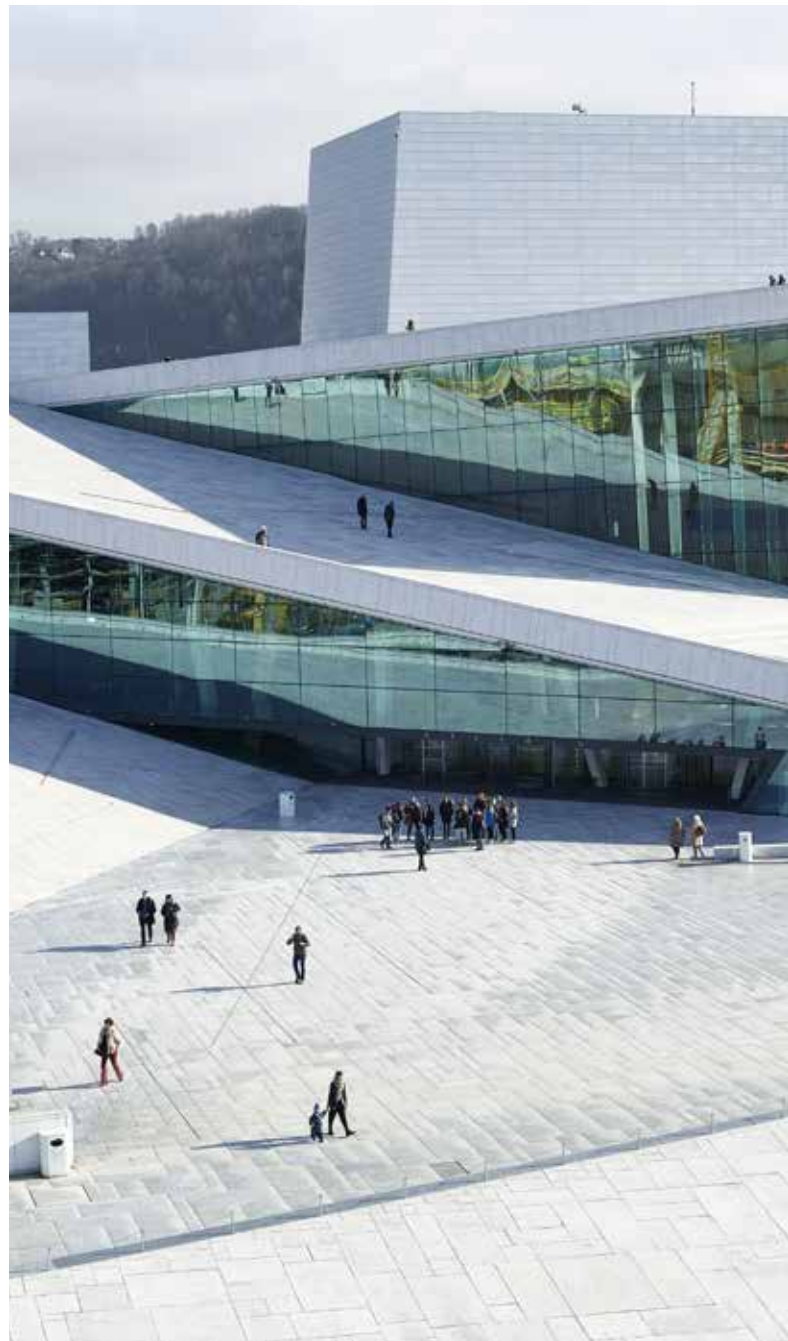
- **Incentives:** Different from the private sector, innovation in government may not always lead to significant benefit to the individual spearheading it, such as financial reward or recognition, because public servants are motivated for the public good, rather than private gain. Recognition and reward systems encourages experimentation by public servants at all levels.
- **Entrepreneurial mindset:** Government entities and civil servants do not face the kind of existential threats that act as a profound incentive to innovate in the private sector. Civil servants tend to enjoy longer term employment, either by law or practice. Even where elections are held, government organisations do not exit the market and public services can stagnate without

the government itself going out of business like a firm would. An entrepreneurial mindset, with continuous willingness to change and adapt can bear great benefits to government entities.

- **Long-term thinking:** Governments must focus on immediate service delivery challenges, from keeping hospitals staffed and equipped to dealing with security, terrorism, and fiscal health, but they also benefit from broadening their perspective, to think about different ways of doing things. A long-term perspective affords governments the opportunity to drive projects and programs that might not provide immediate returns. However, the scale of these initiatives means that the eventual benefits will be expansive and opens the door to incorporating new and emerging technologies as well as experimental and innovative approaches.

- **Regulations:** Governments can nurture innovation by designing favourable regulations. Fast-moving areas like cryptocurrencies, artificial intelligence, the sharing economy and self-driving cars all depend on forward-looking governments to make appropriate decisions that help these valuable innovations take root safely in the economy.
- **Public money and risk:** In all areas of public policy, there are examples of well-intentioned policy interventions that backfire in surprising ways. Governments also need to show that they are spending public money responsibly and so are naturally risk-averse and less willing to accept failure.

As this paper will show, there is strong evidence that governments can adapt to and deploy an innovation mindset and culture across all manner of public affairs, and thereby help themselves, companies and – most importantly – the citizens they serve.



SHAPING THE SIX FACETS OF INNOVATION- DRIVEN GOVERNMENT

What does an innovation-driven government look like in the real world? In exploring the ideas, approaches and initiatives being tested across the world, we have identified the six facets of an IDG.





COLLABORATION AND ENGAGEMENT

To unleash a virtuous cycle of innovation in their countries, governments can leverage new forms of public-private sector collaboration and engagement, while also improving cooperation between their departments and entities.

The public sector can open new frontiers by providing companies with access to resources – data, funding, natural resources – that help accelerate innovation. It can also provide open innovation platforms, engaging companies and the public at large in finding innovative solutions to large challenges.

In India, for example, the government collaborated with the private sector to create a nationwide digital identity scheme, Aadhaar, which provides online identities to a billion citizens, many of whom were previously undocumented⁴. This collaboration provided a powerful platform that allows the government, companies and other

organisations to tackle a wide range of challenges, from reducing corruption to improving financial inclusion and facilitating healthcare provision. In other words, solving the challenge of national identification catalysed innovative breakthroughs which are now feeding back into the ecosystem. The scale of data produced and processed by public service administrations also opens new collaboration pathways, creating a treasure trove of information which technology and software firms can work with, and in so doing, develop and enhance their analytics technology⁵. A wave of start-ups and entrepreneurs has emerged around the world aiming to use digital tools to optimise public service delivery. Large companies are also diversifying their services to support the big data revolution. Smart city technology, with universal access to internet, improved data analytics and GPS, helps urban authorities optimise services and stimulates innovation from a network of technology companies, from Siemens to Cisco.

Collaboration can take more consultative formats, for instance by bringing together stakeholders to generate ideas for public service transformation. Saudi Arabia has formed an informal network, combining ministry members with hundreds of experts from business, academia and consultancies, all contributing ideas about the country's future direction. As the kingdom pursues an ambitious transformation agenda, as outlined in Vision 2030, such collaboration shows interest in the innovative ideas of those outside of government.

Another notable example of innovation-driven collaboration is the development of new forms of partnership to deliver better public services. One of the most innovative approaches now being trialled

is social impact bonds, which attempt to find promising alternative approaches to tackling social problems. Investors provide capital and funding, and receive a pay-out if a remedial programme achieves a pre-set impact.

The UK, for example, issued a social bond aimed at reducing reoffending rates among those leaving jail. It supported a mentoring scheme that helped young people to transition successfully to normal life. It reduced reoffending rates by 9%, surpassing the investor pay-out threshold of 7.5%⁶. While not all social impact bonds have been a success, they do show the openness of governments and public-sector entities to use collaboration to drive innovative responses to social challenges.



CULTURE, PEOPLE AND TALENT

There is an underlying enabler on which all IDGs depend: the talent, skills, diversity and culture of the government workforce itself. Governments need employees who are creative problem-solvers, working in a culture that allows them to experiment and innovate.

Conventional wisdom holds that public-sector workers are less innovative and risk-taking than those of the private sector. This is partly because of selection bias: the most innovative young people will tend to work for the private sector or set up their own firms, rather than work for large government organisations.

Another piece of conventional wisdom is that the incentives of government are different from those of the private sector because, the thinking goes, you cannot take risks with public money. While failure is celebrated in Silicon Valley, citizens may not feel the same about failure in their own governments.

Here, the public sector is learning more from the risk-embracing culture of the commercial world. Firstly, the nature of failure matters. The ‘fail forward’ approach means the important thing is learning from the process. You can fail provided you draw lessons and in so doing, diminish the possibility of further failures. The second is to ‘fail

fast’. Here the emphasis is on having the courage to stop a process that might be failing.

Changing cultures and incentives takes time. It might be necessary to rethink internal key performance indicators and staff performance assessments. Awards and recognition schemes are one option. Australia, for example, created a Prime Minister’s award programme designed to “honour the achievements of public sector work groups, units and teams rather than individuals, with organisations needing to demonstrate that they are able to devise and implement innovative customer-focused initiatives”⁷.

Governments can also put in place ‘innovation targets’, such as requiring each department to deliver three innovative ideas a month, which gives workers licence to spend time thinking creatively. Changing culture takes time, and may require commitment from leadership at the top of government, with heads of state and high-ranking officials ensuring that they publicly and privately back innovation as a goal they prioritise. That transformation can also be supported by a range of institutional innovations:

a. Innovation units and sandboxes

Governments are creating special teams or units that operate under different rules that are more facilitative of innovation. More importantly, these units are not insulated from the rest of government. Their whole rationale is to engage with government and drive innovation. But it may be desirable to give them an innovation-specific mandate, with performance indicators that reward appropriate experimentation.

Singapore's GTECH agency, for instance, is tasked with applying ICT and engineering to public sector transformation, with a role that includes developing capabilities and talent, and pushing the country's Smart Nation agenda⁸. Dubai has created the 10X scheme, mandating that every government entity set up an internal unit responsible for accelerating disruption in its area of operation. The World Bank, while not a government, is a public entity that faces many of the same structural constraints to innovation. To counter organisational conservatism, it launched a landmark programme, called InfoDev, whose role was to support innovation in developing countries. The multi-donor agency had an accepted rate of failure of 70% for its projects.

'Sandboxes' are another way that government entities are encouraging experimentation in areas that might carry regulatory risks. Based on the recognition that governments may be uncertain or have not yet decided on how to regulate certain technologies, these are designed to encourage the private sector to experiment, while giving regulators a chance to see how technologies develop, rather than stifling them through onerous or outdated rules. Abu Dhabi Global Market (ADGM), a financial free zone, allows local and global fintech firms to develop and test products within a controlled "sandbox" environment. The UK Financial Conduct Authority also launched a regulatory sandbox allowing businesses to test products, services and business models in a 'live environment'⁹.



b. A pro-innovation education system

The public education system contributes to an innovative government workforce in the future, by teaching useful skills like coding, and instilling creative problem-solving attitudes in students. Newer skills, like machine learning and artificial intelligence, draw great interest from those who have an innate love of learning and wish to keep abreast of changing technologies. Such a hunger for knowledge is best instilled in the course of one's education. The education system can sow the seeds of innovation in the future workforce by teaching students how to think critically, and to learn how to learn, equipping them with a skill set they can later deploy in public service, for those who take that route. By raising the innovation potential of their citizens, countries with educational systems that encourage critical thinking, reflection, autonomy and creativity will inevitably strengthen the stock of graduates bringing those skills to government.

c. 'Brain circulation'

One stimulus to innovative thinking among government workers is more varied experience across different sectors, and of solving different kinds of problems. Through cross-pollination, the

movement of people across contexts is a form of organisational ecology that can lead to greater creativity. One of the greatest innovators of the modern era, Steve Jobs, was a master of cross-pollination. He brought together a wide range of experiences, disciplines and skills, from design and calligraphy to information technology, to create Apple.

Learning from this, governments could encourage staff to move into different departments, or to spend time in the private sector, to acquire a broad range of experiences and insights which they can apply to solving problems in new ways. Secondments, job rotations, sabbaticals, and financial support for higher education courses, are all options to enable such 'brain circulation'¹⁰. Governments could also do more to leverage the rise of Massive Open Online Courses (MOOCs), a low-cost and effective way of giving staff the ability to learn about newly developing technologies.

d. Greater diversity

A growing body of evidence shows that greater diversity is associated with higher rates of innovation. One study¹¹, which explored inherent diversity and acquired diversity (such as working overseas or in different cultural environments), found that companies with diversity across both dimensions were 45% more likely to report that their firm's market share grew over the previous year and 70% more likely to report that the firm captured a new market. Governments can greatly strengthen their innovation performance by ensuring greater diversity across several factors including skillsets. Ministries of justice, for instance, can hire more than just legal experts, benefitting from technology experts - to name one area - who can design apps and tools to, for instance, help jail leavers find jobs and services. Similarly, tax departments, rather than only hiring people with accounting skills, can think about bringing in those with knowledge of big data, predictive analytics and artificial intelligence, all of which can improve efficiency and provide new insights.

e. A pro-innovation culture

It is important for governments to lead from the top and ensure that employees feel empowered to contribute to ideas and test them in a safe environment. Appropriate incentives can be put in place, including performance-based evaluations that reward employees for generating ideas, bonuses and financial perks where appropriate, training and travel opportunities, and perhaps most importantly recognition, a key motivator for innovative people. The goal should be to create a culture of 'intrapreneurship', where employees within an institution adopt an entrepreneurial mindset and drive innovation within their teams and departments.



STRATEGY

IDGs are finding ways to embed innovation across the full range of government entities, rather than merely in certain departments. This strategic, whole-of-government innovation approach can take multiple forms but requires a combination of guidance from the top and institutional underpinning.

Creating specific government bodies that monitor how the government is performing on innovation and service delivery is one example. ‘Delivery units’, pioneered in the UK and since adopted by countries from Chile to South Africa and Saudi Arabia, are internally focused agencies whose mandate is to look at how well the government is performing in delivering its policy priorities. This is a process of self-examination that can weed out inefficiencies, identify failing programmes and follow up on the execution of innovation projects after their launch. A different approach is to redefine policy goals and create an institutional base to drive them. The UAE Innovation Strategy, for example, requires government entities to dedicate 1% of their budget to innovation projects.

The UAE also created ministerial positions for the future and artificial intelligence, and dedicated innovation champions in all government entities, in an aim to focus attention on these agendas and shift public servants’ mindsets.

Lastly, IDGs also advance a strategic agenda through the issuance of ‘government innovation agendas’ which build momentum, ensure buy-in across departments, and push innovation up the agenda for government. While these may seem like soft documents or vague visions, they do help to frame innovation as a goal that the government respects and values. That increases the confidence of public servants to put forward more innovative ideas. It also rallies public support and commitment in a way which supports the use of public money to advance innovation.

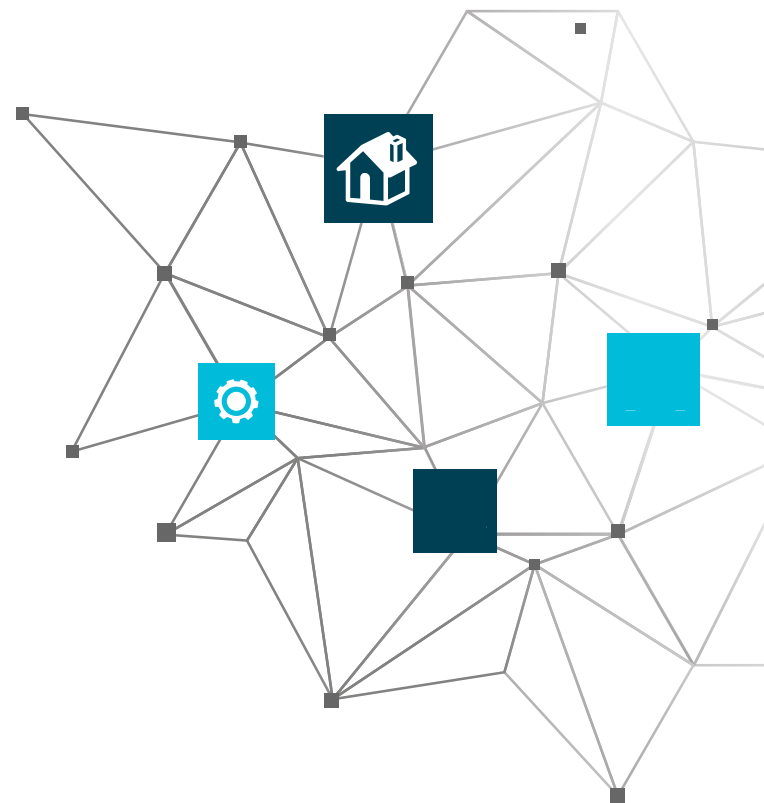
INVESTMENT IN R&D AND DIGITAL INNOVATION

Innovation is about new approaches and mindsets, but its foundation is the power of digital transformation. The implications of digital technologies for governments are profound. From artificial intelligence to 3D printing and blockchain, they can be used to improve efficiency, cut costs and enhance security in processes as diverse as land titling, voting and digital identity verification. Rather than simply using digital technologies to take more government services online, innovation-driven governments are those which spot new public sector uses for emergent technologies.

Of all the areas of government-focused technology, blockchain is perhaps the most exciting and radical. A distributed ledger that records transactions protected through cryptography, blockchain is most commonly associated with crypto-currencies, but the technology goes far beyond digital money. It is being used to simplify bureaucratic processes like cross-border trade approvals¹². Dubai is exploring blockchain-based business registration, central banking and trade, with a goal to become the first “blockchain-powered government in the world by 2020”¹³, and is conducting public-private workshops to prioritise the services that could most benefit

from the technology. Dubai wants to utilise cloud computing to provide blockchain as a service which companies and government entities can use to implement projects. It is working with IBM to deploy blockchain to provide real time information about goods’ shipments.

Estonia is another pioneer, deploying blockchain to secure health records of over a million people¹⁴, for instance, and the US state of Delaware, where many companies incorporate, is piloting a blockchain-based approach to corporate registration and shareholder listings¹⁵.



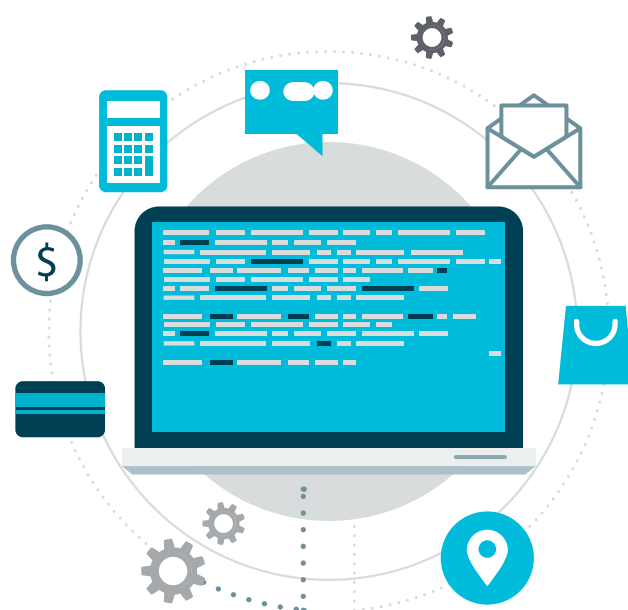
PROCUREMENT


The public sector is a significant buyer of goods and services, with some estimates putting public sector procurement at a fifth of global GDP¹⁶. The public sector is the largest consumer in the internal EU market, with high value tenders contracted in 2014 alone amounting to some \$500bn, around 13% of EU GDP, focused largely on public administration services, education, health, and social work services¹⁷. In developing economies, governments spend a combined \$820bn a year, roughly half of their collective budgets, procuring goods and services¹⁸.

As a major buyer, the public sector's procurement strategy can influence the R&D activities of the private sector. An IDG is one which identifies a need and challenges the private sector to solve it in an entirely new way. It can become a launching customer that gives the private sector the incentive it needs to commit R&D effort, or it can help a promising company expand investment in an area that needs the kind of scale and customer exposure that only public procurement can give.

Public Procurement of Innovation¹⁹ (PPI) is the term given to the use of public procurement to drive innovation. It can take several forms:

- Direct government procurement of innovative good and services
- Direct government procurement from innovative companies, irrespective of the goods and services themselves, giving higher evaluation scores to innovative start-ups and companies
- Indirectly procuring from companies that procure or venture with small innovative companies, reducing for governments the risk directly associated with start-ups
- Public procurement quotas to procure from innovative companies, similar to what is often done for small and medium sized enterprise





The UK has been an avid adopter of PPI. One prison service tender sought procurement of a “zero waste” mattress, with estimated savings of over \$6 million over a four-year period²⁰. The UK government also spearheads the Forward Commitment Procurement, asking agencies to identify “unmet needs” that require an innovative response not currently available²¹. The country is also leading a Europe-wide PPI initiative, EcoQuip, which brings together an ‘Innovation Procurement Leaders Group’ of hospitals with competence in PPI to help pioneer new approaches to collaborative procurement²².

The Netherlands is also active in this sphere, with projects including a public works contract to widen a major road using bio-based solutions like geotextiles and biodegradable underground tree anchoring systems²³. In France in 2014, a ‘high school robot’ PPI asked the market to enter ideas for a robotic ‘remote presence solution’ to help sick high school students²⁴. Other finalists

included a Netherlands-based PPI to apply robotics to hospital bed disinfection, and one in Oslo to develop technology allowing residents to communicate with relatives, friends and health personnel as well as carry out everyday activities like ordering food.

In recognition of the appetite for PPI in Europe, and based on the evidence of its effectiveness, the European Commission recently launched a tender for proposals that could help the EU develop and implement “a sustainable method for the successful facilitation of public procurement of innovation” in sustainability and energy efficiency within the single market²⁵.

Gulf nations are also experimenting with PPI. The Dubai Future Accelerators programme is an example of innovative government procurement, which is used as a tool to incentivise global start-ups to bring technological solutions to pressing challenges posed by government entities.

For PPI to function, the procurement process itself must be open and competitive in ways that favour innovative firms. There is often a tendency for large, well-connected companies to repeatedly win government contracts, regardless of whether they are offering the best and most innovative solutions. The process involved in accessing and bidding for government contracts – requiring several years of solid financials, bank guarantee instruments and numerous credentials – explains why innovative or non-traditional companies often do not pitch for government opportunities as often as they might like to.

This reality poses both a problem and an opportunity. It may mean the public sector is overpaying for services, shortening its resources in other places. It could also mean it is using non-competitive or inefficient vendors or solutions. However, a more competitive environment, aided by policies to change norms and introduce quotas, along with e-procurements and more open processes, raises the likelihood that smarter ideas, from a wider range of companies, will win out.



INNOVATION PROCESS

IDGs develop an ‘innovation process’ to rethink ‘business as usual’ and try new approaches to policy design. One example is ‘design thinking’, which brings an R&D methodology popularised by the technology sector into other organisational contexts. The principle is ‘express, test and cycle’, with participants thinking creatively and practically about solving a problem in an ongoing and iterative process. It involves using empathy, and thinking/observing from the perspective of beneficiaries or end customers when engaged in problem solving. Having observed the target audience and their needs, participants create new solutions and ideas, prototype different options, and then implement the strongest one.

Finland’s approach to a basic income is a good example of policy-focused design thinking in action. Faced with a high unemployment rate of almost 9%, Finland’s government has been experimenting with a form of basic income for the unemployed. While less radical than a universal basic income grant being trialled by Silicon Valley incubator, Y Combinator²⁶, it is the most ambitious attempt yet at the government level, to see if a guaranteed sum of money could have a positive impact on labour markets.

The challenge of the Finnish welfare system, historically, has been that people who are unemployed are dis-incentivised from freelance or ‘gig economy’ work because earnings would be deducted from their welfare payments. The government wanted to see if a guaranteed income would increase the likelihood of people seeking employment. Through a randomised trial, Finland is experimenting with crafting legislation in stages, relying on user feedback to move forward²⁷. While certainly too early to describe the experiment as a success, it does stand out as a more innovative method of policy development.

A second example of innovative process in government policy is the use of behavioural economics to inform policy design. The awarding of Nobel Prizes to Daniel Kahneman in 2002 and Richard Thaler in 2017 is recognition of the contribution that behavioural economics has made to public policy in recent decades. This discipline, which studies the often-irrational ways in which people make decisions, has implications for government policy and a growing number of governments are experimenting with behavioural economics in policy design.

Policymakers hope that by better understanding human behaviour, they can design policies based not on economic ideologies but on the real ways in which people make decisions. The UK Behavioural Insight Team was a pioneer, eventually spun out of government to become an independent consulting division working with dozens of organisations internationally including the United Nations, the Mexican government, and the New South Wales government.

Such policy-oriented behavioural economics research is also an example of innovative process through its use of randomised trials. This method, borrowed from pharmaceutical research, infers causal relationships between interventions and outcomes, by allocating an intervention to a subgroup within a preselected population. The application of randomised trials to public policy has itself been an innovative methodological approach that can help provide real, rigorous data on the success of policies in achieving their desired goals.



CONCLUSION

In recent years, a growing number of governments have proven that the state has a powerful role to play in promoting innovation in the private sector. But as this paper has argued, there is an even bigger opportunity that the most visionary public servants are now spearheading- governments as more than supporters of innovation in the commercial world, but as active co-participants in the innovation ecosystem.

Their own ways of working will influence and shape the wider ecosystem. A government's choices, norms and culture, and the ways it thinks about the future of its services and its role, make it a big part of the shift towards more innovation-intensive economic growth. The most forward-looking nations are already taking an innovation-led approach, and others can learn from their example, tailoring best practices to their unique circumstances.

Innovation-driven governments are those that embed innovation in their organisational DNA and mindset. The way they collaborate

and engage with the private sector and the public, their culture and people, their strategy, investment in digital innovation, procurement of innovation and their own innovation process (the six facets of an IDG) drive a virtuous cycle of innovation – transforming the potential of the economy, the citizens and the country itself.

The innovation-driven agenda is not simply a luxury for wealthy governments with plentiful resources. As countries around the world seek to overcome the complexity of interlinked environmental, economic and social challenges, new ways of thinking and working are essential. Public servants are starting to think more like entrepreneurs, and searching for new ideas and more creative ways of solving problems. Those governments that embrace innovation themselves – in their mindset, their processes and their institutions – can play their full role as inspirers and orchestrators of innovation at home, setting the trend and pace for other countries to follow.

THE WAY FORWARD: SHIFTING TO IDG

Getting started on the journey to innovation-driven government begins by identifying the starting point and the gap to reaching the full spectrum of institutional innovation. This assessment can be used to develop an innovation road map, using the baseline data to track progress. It is crucial to set realistic and well-designed targets and regularly assess progress.

The implementation of projects and initiatives supporting innovation should take account of time horizons. Some reforms, like public procurement of innovation, can be rolled out in the **short-term** if governments have reasonably developed administrative systems. The same applies for R&D and innovation experimentation in areas like blockchain, smart cities and artificial intelligence. Enabling technologies are accessible and can be explored with many private sector partners, while use cases are increasingly available to identify best practices.

Medium-term changes are those which require, for logistical or political reasons, more time to execute. Creating new agencies and institutions to drive innovation in public services are good examples. The processes of forming new agencies, staffing them, and setting up workable protocols for interaction with other government departments and organs, may be time-consuming, but the potential impact is not to be underestimated.

Lastly, there are **longer-term** goals, of which changing cultures to favour innovation may be the most important. Institutions that have, for generations, operated under a particular routine or environment, may require more time to part with their existing protocols and process and fully embrace innovation. However, the potential fruits of such an endeavour make the effort worthwhile.



SINGAPORE: EARLY ADOPTER

Few countries embody the innovation-driven approach better than Singapore. It supports entrepreneurs through organisations like Innovate and invests in areas like artificial intelligence²⁸. Singapore has also transformed its own government. It was an active adopter of behavioural economics to inform public policy on issues like congestion charging²⁹. It pursues ‘sandbox’ approaches in the data domain, with one programme, for example, allowing companies and agencies to exchange and analyse big data; it has also installed a regulatory sandbox, set up by the Monetary Authority of Singapore, which allows fintech players to experiment with new financial products and services.

Much of Singapore’s approach is framed in the context of a broader pro-innovation agenda that embed these principles across its government. Its PS21 policy framework places emphasis on empowerment and gives public servants an individual responsibility to seek opportunities for innovation and improvement. Its Enterprise Challenge identifies unique and untried ideas with potential to provide value creation in public services, which are then selected, groomed and matched to appropriate testbeds in the public service³⁰.

ESTONIA: DIGITAL-FIRST GOVERNANCE

Estonia has put digital technology at the heart of its government and in the process become the “most advanced digital society in the world”³¹. The birthplace of disruptive companies like Skype and Transferwise, Estonia’s technological lead is impressive for a country that only achieved independence from the Soviet Union in 1991. While many other post-Soviet states still struggle with the legacy of inefficient, statist governance systems, Estonia has transitioned to the forefront of global technology.

This is in large part, thanks to government policy efforts. Education has always received high priority. By 1997, 97% of Estonia’s schools already had internet access³². Since the turn of the millennium, the government has passed several milestones that express the best of the innovation-driven approach³³. Andrus Ansip, an Estonian politician, is the European Union Commissioner for the Digital Single Market, a wide-ranging strategy launched in 2015 to harmonise European laws and regulations in the digital sphere and help make the continent a leader in information and communication technology³⁴.

Estonia’s innovation timeline

- **E-taxes (2000):** Electronic tax claims have reduced the process to a single click and can be completed in 3-5 minutes. Around 95% of all tax declarations are now filed electronically.
- **X-Road (2001):** Estonia’s e-government strategy lacks a centralised master database. All information is held in a distributed data system which, the government claims, saves 800 years of working time for the government and citizens per year.
- **Digital ID (2001):** A chip-equipped card, carrying embedded files and with 2048-bit public key encryption, Estonia’s ID card provides access to digital government services.
- **i-Voting (2005):** The first nation in the world to offer internet-based voting in a nationwide election, enabled by the digital ID system. Voting takes no more than 3 minutes and citizens can vote from anywhere in the world.
- **Blockchain (2012-present):** Estonia has been using blockchain across multiple areas of government including health, judiciary, legislation, and security
- **e-Residency (2014):** Estonia’s ‘gift to the world’, the e-Residency innovation is a transnational digital identity that provides anyone from anywhere the opportunity to set up a business in Estonia, without setting foot in the country. e-Residents receive a government-issued ID and full access to Estonia’s public e-services.

ENDNOTES

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