

Case studies



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Disclaimer

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Canada

Why was this case study selected?

Canada was chosen because it has a similar government structure to the UK at the national level, if less so at the regional tier. It also has one of the most resilient foresight structures, particularly the Policy Horizons Canada (Policy Horizons) unit.

4 Comparability to UK system
Medium/high.

5 Activity across the ecosystem
High.

5 Impact at system levels
High.

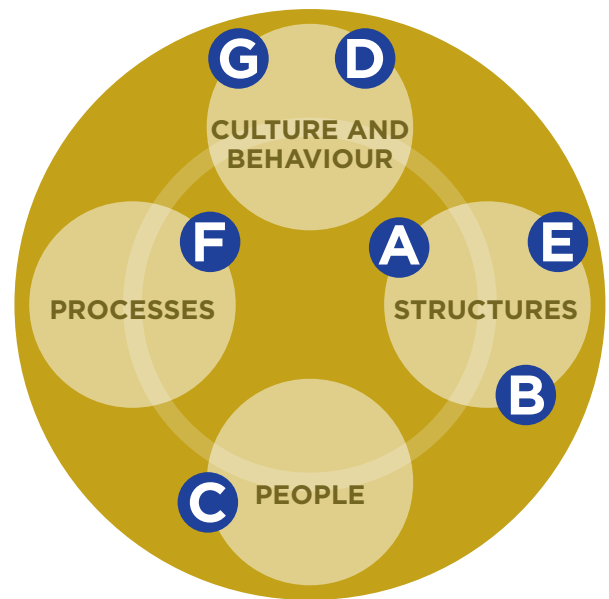
4 Level of innovation
Medium/high.

Key themes

- A strong central foresight resource, Policy Horizons has lasted through multiple administrations. Responds to demand from various federal departments and agencies, while developing its own foresight work in emerging areas. A Deputy Minister Steering Committee provides oversight and guidance.
- Success of Policy Horizons partly depends on engagement of senior officials with its foresight work, incorporation of its foresight findings and methods to departmental processes, Deputy Minister Steering Committee support, as well as the role of the Privy Council Office to bridge into mainstream policy-making.
- Line ministries have varying foresight capabilities which they use to pursue and deliver activities relevant to their own. There is mixed levels of engagement and coordination between ministries, agencies and Policy Horizons.

Capability features for a sustainable foresight ecosystem

- A. Policy Horizons has lasted through multiple administrations. It has three roles: analysing the emerging policy landscape, engaging in conversations with public servants to inform policy and decision-making, and building foresight literacy and capacity across the federal public service. Most recent work has included foresight on COVID-19, bio-digital convergence, the Next Digital Economy and social futures, which are newer areas of focus for the team and for policy-makers.
- B. The Privy Council Office sits on the Steering Committee of Policy Horizons and plays a crucial role in linking foresight work into mainstream policy processes. The relationship with and buy-in from the Privy Council Office is seen as crucial to creating impact.
- C. Strong leadership at many levels has allowed Policy Horizons' foresight practice to evolve and mature over time.
- D. There is growing awareness and efforts across the foresight ecosystem to broaden the voices and views incorporated into foresight work. For example, Policy Horizons created a Federal Foresight Network across the public service and there is an explicit aim to include participation of Indigenous peoples.



- E. Ministries with foresight capabilities include Canada Revenue Agency, Health Canada, Global Affairs Canada and the Department of National Defence.
- F. Policy Horizons measures its influence through feedback from the Steering Committee members and users in line ministries on how they value the foresight work. It also looks at the level of demand and the types of asks that come from departments and agencies within the public service, including senior leaders within those organisations.
- G. There is a recognised need within the community to improve communication around the concept of foresight and its role in policy. Foresight is often seen as remote to decision-making but is gaining credibility, including in the light of COVID-19. There is strong demand for strengthening foresight capacity across the Government of Canada.

Timeline	Key milestones
1945	Ministry of State and Technology is set up, including some attention to what the future might bring.
1967	Montreal hosted the World Expo with a focus on “The World of Tomorrow”.
1973	Interdepartmental Committee on Technological Forecasting established within the Ministry of Science and Technology. Advanced Concepts Centre, Environment Canada established, focusing on studies of the future of energy and renewable energy.
1976	Canadian Association for Futures Studies conference established and held national conferences over 10 years, with extensive government participation and financial support.
1976-1989	System operates with no major change.
1989	Development of the Inter-departmental Committee for Futures and Forecasting (ICFF), bringing together leaders representing 40 federal departments and agencies to consider future trends and their implications for policy.
1990	Department of National Defence (DND) collaborated to produce a foresight report on the future of Air Force.
1991	National Research Council (NRC) establishes a Futures and Synergy Network to support its science and technology foresight activities.
1994	Department of Foreign Affairs and International Trade (DFAIT, now Global Affairs Canada) begins a competitive intelligence training programme that includes foresight. In 1999, a small foresight and research group was set up in the Policy Planning group. There was a break in the foresight function of this group, which was revived in 2015.
1996-2010	The Policy Research Secretariat (PRS) was created in the Privy Council Office of the federal public service. In 2000, the PRS became known as Policy Research Initiative (PRI), which launched a number of horizontal policy research studies with a foresight component, often with engagement with senior management within the public service.
1996-2016	Environmental Scanning Practice Group brought together 20 departments to share scans and experience with scanning six times a year.
2006	Health Canada’s foresight unit established – this is then closed in 2009.
2008-2009	At the request of the Clerk of the Privy Council, PRI launched Canada@150, a project to train 150 new public servants in scanning and foresight and brought extensive engagement with the deputy minister community.
2010	PRI shifted from a traditional think tank to a foresight centre, Policy Horizons Canada.
2011-2021	Policy Horizons produces a number of foresight studies, trains hundreds of public servants, builds a foresight network across government and collaborates with many departments to enhance the use of foresight in their work.
2017-2018	At the request of the Privy Council Office, Policy Horizons launched the Canada Beyond 150 project in 2017 to train 80 early-career public servants in foresight, as a follow-up to the Canada@150 project and in anticipation of Canada’s 150th anniversary.
2010-2021	Growing interest and capacity in foresight and increased investment in Policy Horizons, Ministry level foresight capabilities and mechanisms for foresight collaboration.

Finland



Why was this case study selected?

Finland has strong institutions for foresight across the system including in the legislature, the executive and funded non-departmental public bodies. It is an example of a well-structured and well-connected ecosystem for long-term thinking.

4 Comparability to UK system
Medium/high.

5 Activity across the ecosystem
High.

5 Impact at system levels
High.

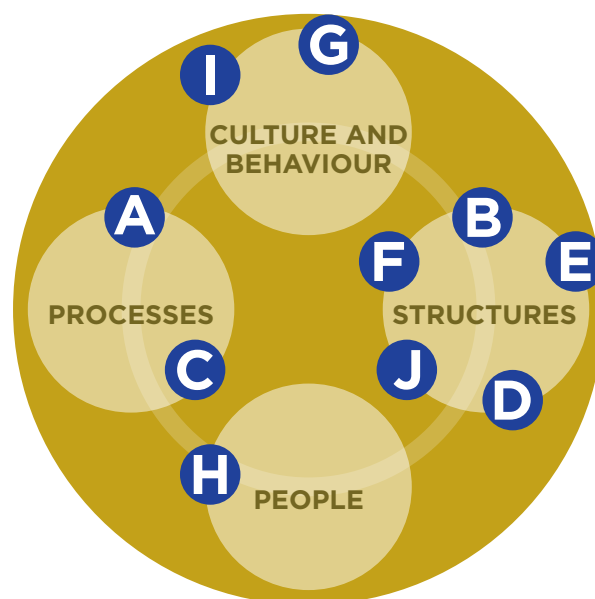
5 Level of innovation
High.

Key themes

- Finland entered into a deep economic downturn in the early 1990s, seen as a catalyst for foresight. Today, there is a strong focus on sustainability and an awareness of the need to be prepared for risks, crises and vulnerabilities while focusing on driving the economy forward.
- Foresight in Finland closely links parliament and the executive branch and the innovation infrastructure in society. The executive branch is closely linked with universities, keeping abreast of innovation.
- Requirement for Government Report on the Future sets long-term strategic agenda. Translated into the executive with parliamentary oversight.

Capability features for a sustainable foresight ecosystem

- A. Government Report on the Future produced by government including engagement with the public, third sector, private sector and universities.
- B. Parliamentary Committee for the future has approval role for the Report on the Future and uses it to signal strategic priorities for the next Government term. The Committee also produces its own futures reports on key issues.
- C. Ministries required to produce their own futures reviews to inform government programming.
- D. Financially and politically independent think-tank, Sitra, reports to Parliament, with a remit to fund research and innovation, to do its own work and to provide insight to government and other actors on the long-term.
- E. Government Foresight Group promotes foresight at a national and network-wide level to link foresight and decision-making processes.
- F. National Foresight network coordinated by Prime Minister's Office and Sitra, connects Government Foresight Group with foresight hubs across private sector, academia, regional councils and the wider research and innovation system. Including hosting foresight Fridays, national seminars and thematic events.



- G. Government participates in international foresight activity, including the Network of Institutions for Future Generations
- H. Finland Futures Research Centre in the University of Turku dedicated to futures studies in academia. There are also many actors seeking to popularise futures thinking and change making, for example the Future Makers project by Sitra.
- I. There are mixed views on the level of conflict or competition within the system as a result of capacities and networks having some overlapping roles.
- J. Foresight initiatives also exist at regional level (municipalities, regional councils, etc.).

Timeline	Key milestones
1917	Finland declares independence.
1967	Sitra established by Parliament in commemoration of the nation's fiftieth year of independence. Sitra set up as a gift to the Finnish people with a mission to build the successful Finland of tomorrow.
1967-1990s	System operates with no major change.
1990s	Economic crisis prompts many Finnish ministries, private organisations, councils and research organisations to adopt foresight methods and activities.
1992	The Futures Research Centre, a department in the Tuku School of Economics founded by collaboration of three universities.
1993	The Committee for the Future was established in Parliament as a temporary unit. The first report on the Future was produced in 1993.
2001	The Committee for the Future established as a permanent body. Subsequent reports have been produced for every parliamentary term (in 1996, 2001, 2004, 2008, 2013, 2017)
2013	First Report on the Future produced by Government and Parliament; submitted to the Committee for the Future to set strategic policy goals for Finland.
2016	Hosts the Network of Institutions for Future Generations annual conference.
2018	Second Report on the Future produced by Government and Parliament; submitted to the Committee for the Future to set strategic policy goals for Finland.



Malaysia

Why was this case study selected?

Malaysia is an example of using foresight to create a national vision and to create cohesion across sectors. The focus has historically been on emerging technology, although this has broadened to include other aspects of change including the economy and society.

3 Comparability to UK system
Medium.

3 Activity across the ecosystem
Medium

3 Impact at system levels
Medium.

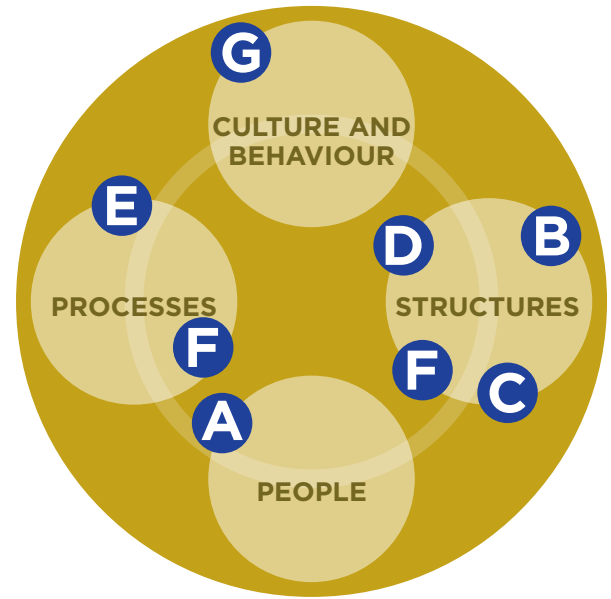
3 Level of innovation
Medium.

Key themes

- Commitment to long-term development of a harmonious, prosperous and sustainable nation is enshrined in the Rukun Negara (national principles) proclaimed in 1970. Focus on just, liberal, progressive and inclusive society that makes use of science and modern technology.
- Powerful, visible and long-standing champions leading foresight efforts have helped sustain activity and ecosystem over time.
- Strong focus around visioning, especially linked to Science, Technology and Innovation but limited success institutionalising across the ecosystem. This is being addressed through the National Policy on STI (2021-2030) and the 10-10 My STIE Framework, with a focus on institutional frameworks and strengthening science, technology and innovation.

Capability features for a sustainable foresight ecosystem

- A. Malaysia's Tan Sri Dr. Omar Abdul Rahman, former Science Advisor to the Prime Minister, has been a long-standing proponent of foresight, driving strategic level investment and attention to foresight, building capacity and appetite for the work.
- B. Malaysia has invested in a number of foresight institutions, but interviewees felt more could be done, including developing a dedicated foresight unit within government with a clear call for institutionalisation.
- C. Malaysian Industry-Government Group for High Technology (MIGHT) leads on foresight work, with a focus on new and emerging technology. Originally under the Prime Minister Department but now moved to the Ministry of Science, Technology and Innovation. MIGHT's governance, board, networks and work offer an example of public and private partnerships in foresight for technology use and business development with considerable consultation. Governed by government and industry co-chair who consult on agenda with PM twice a year.
- D. MIGHT includes the Malaysia Foresight Institute, or myForesight which provides training and runs consultations and projects, networking and horizon scanning.



- E. Foresight work in Malaysia is often focused on vision setting. Early visions were aspirational, but not linked to action. More recent visions have had a stronger focus on prioritisation and action. These include the Academy of Sciences Malaysia's Envisioning Malaysia 2050: A Foresight Narrative, and Malaysia 2050 - Emerging Science, Engineering & Technology (ESET) report.
- F. Malaysia is focused on building capacity among young people. This explicit commitment to joint and future ownership means there is collective, long-term buy in to the plan. Malaysia also hosts one of the first UNESCO chairs of foresight at the Universiti Sains Islam Malaysia supporting futures literacy.

Timeline	Key milestones
1984	Tan Sri Dr. Omar Abdul Rahman was appointed as Science Advisor to the Prime Minister in 1984 and subsequently launches a foresight programme that focuses on values, beliefs and social cohesion.
1991	Vision 2020 is introduced by Prime Minister Mahathir Mohamad who served as the fourth and seventh Prime Minister of Malaysia. Developed during the Sixth Malaysia Plan the vision sets out a nation that is self-sufficient and industrialised by the year 2020. The vision covers all parts of life, from economic prosperity, social well-being, education, political stability and psychological balance.
1992	The Ministry of Science, Technology and Innovation (MOSTI), uses the Industrial Technology Development: A National Plan of Action to create the Malaysia Science and Technology Information Centre (MASTIC).
1993	Malaysian Industry-Government Group for High Technology (MIGHT) is established as an independent, non-profit technology think tank that comes under the Prime Minister's Office. Tan Sri Dr. Omar Abdul Rahman appointed Founding Chairman of MIGHT.
1995	Academy of Sciences of Malaysia (ASM) is founded. Commonwealth Partnership for Technology Management established, building on collective work started by Chief Scientific Advisers coming together in the 1980s to consider the use of science and technology for the development of the emerging economies.
1996	National Technology Action Plan (NTAP), was launched using to guide technology planning and Research & Development (R&D) looking at 10-year future scenarios.
2009	National Technology Foresight 2020 was conducted to identify National research priority arrears was conducted by the Ministry of Science Technology & Innovation (MOSTI)
2010	Under MIGHT, the Global Science and Innovation Advisory Council is established to optimise foresight capabilities across the nation through engaging with a network of international experts, academics, public sector practitioners and business people. The Academy of Sciences Malaysia embarked on foresight studies and initiatives under the Mega Science studies involving 15 different sectors since 2010.
2012	MIGHT is expanded to create the Malaysia Foresight Institute (also known as myForesight).
2015	Professor Sohail Inayatullah becomes the first UNESCO Chair in Futures Studies at Universiti Sains Islam Malaysia promoting futures literacy in Malaysia.
2016	A Foresight and Strategic Data Division was established in the Ministry of Science, Technology and Innovation in October 2016.

Timeline	Key milestones
2017	<p>Transformasi Nasional 2050 (2050 National Transformation or TN50) is launched by the Prime Minister as a two year national development initiative. The programme was formulated by gathering people’s aspirations and ideas particularly young adults and youth through a bottom-up approach while quantifying the economic, social, cultural and environmental targets and milestones. The TN50 programme was led by the Ministry of Youth and Sports and received strong participation and support from the younger generation and youth in the country.</p> <p>Envisioning Malaysia 2050: A Foresight Narrative was a study published by ASM in 2017. It integrates the perspectives of science, technology and innovation, economics and finance, society and culture as well as geopolitics.</p>
2018	<p>The Science Advisor’s Office dissolved in 2018. MIGHT moves to the Ministry of Science, Technology and Innovation.</p> <p>National Transformation 2050 dissolved under the new <i>Pakatan Harapan</i> government.</p> <p>Envisioning Malaysia 2050: A Foresight Narrative by ASM continued to receive support and it formed the foundation for the development of the National Policy on Science, Technology and Innovation (2021-2030) and the National 10-10 Malaysia Science, Technology, Innovation and Economy (10-10 MySTIE) Framework to transform Malaysia into a High Tech Nation by 2030.</p>
2020	<p>National Policy on Science, Technology and Innovation (DSTIN) 2021-2030 and 10-10 Malaysian Science, Technology, Innovation and Economy (MySTIE) Framework launched. MySTIE developed utilising foresight approaches to identify global science and technology drivers that will increase return on value (ROV) of socioeconomic drivers of the country. The framework uses a 'Whole-of-Government and Society' approach to ensure that science, technology, innovation and economic development policies and plans enhance economic growth, improve the livelihood as well as quality of life of the citizens and global competitiveness of Malaysia as outlined in the national Shared Prosperity Vision 2030.</p>



The Netherlands

Why was this case study selected?

Although smaller than the UK, there are structural similarities with the government of the Netherlands. Decision-making in the Dutch system is grounded in consensus building (known as the polder-model) which includes a strong orientation toward consensus and consultation.

3 Comparability to UK system
Medium.

4 Activity across the ecosystem
Medium/high.

4 Impact at system levels
Medium/high.

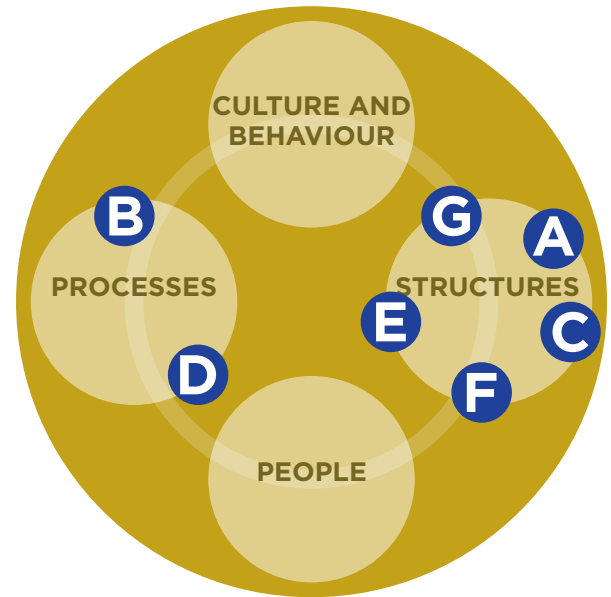
4 Level of innovation
Medium/high.

Key themes

- Strong and long-standing pieces of foresight infrastructure that have matured over time. The structures themselves are strong enough to last even without a specific champion.
- Strong focus on consensus across government lends itself to integrating multiple voices in any process, including foresight.
- Legislature plays a growing role in setting requirements and expectations for long-term thinking.

Capability features for a sustainable foresight ecosystem

- A. Foresight is largely ministerial or sectoral with significant de-centralisation. Cross-ministerial coordination is facilitated through the Council of Ministers.
- B. There is evidence of the use innovative approaches to foresight in some Departmental teams. For example, the Ministry of Foreign Affairs has tried using 'Foresight Tournaments' to support policy development.
- C. The Central Planning Bureau (CPB) for Economic Policy Analysis is an independent body within the Ministry of Economic Affairs and Climate, which maintains its own research agenda. It works with political parties (cabinet and opposition), government ministers, parliamentary members and factions and the Dutch Cabinet to provide reports about the past, present and future.
- D. Group Decision Rooms allow planning councils, government departments, social organisations, scientific institutions and private companies (e.g., Unilever) to come together and consider mid to long-term policies.
- E. The Netherlands Organisation for Applied Scientific Research (TNO) is an independent research organisation that supports government ministries to foster innovation in thematic areas such as healthy living or the circular economy. It supports industry and academic engagement.



- F. The Netherlands Institute of International Relations Clingendael, the Hague Centre for Strategic Studies (HCSS) and the Rathenau Institute are third sector bodies that explore emerging and upcoming issues often related to security and international relations, as well as science and technology.
- G. The Netherlands Scientific Council for Government Policy (WRR) is an independent advisory body, established under an Act of government. It provides advice on long-term strategic and cross-sectoral issues that have political or societal relevance. Reports can be commissioned or self-generated. They are delivered by Council members and reports are made public.

Timeline	Key milestones
1945	The Central Planning Bureau (CPB) is founded. It is funded by the government of the Netherlands, functions independently and focuses on economic analysis that is aligned with scientific rigour for policy development and public consumption. An independent finance committee is set up with a mandate around “stewardship for future generations’.
1972	The Netherlands Scientific Council for Government Policy (WRR) was established in as a temporary advisory council.
1974	WRR’s role with future research came into focus. It was determined that futures-oriented reports produced were to include policy recommendations to be useful to Cabinet.
1974-1977	The report “Maken wij er werk van? (‘Are we working to make it work?’) was published and demonstrated the linkages between WRR and policy.
1978	The WRR is established permanently by the Act Establishing a Scientific Council on Government Policy.
1978-2015	Systems operate with no major change.
2015	The Oslo Principles on Global Climate Change Obligations were adopted by legal experts around the world and the Supreme Court of the Netherlands rules that the Dutch government must cut its emissions by at least 25% by 2020. Subsequent rulings In 2018 by the Hague Court of Appeal and upheld by The Dutch Supreme Court in 2019 as part of the Urgenda Climate Case brought about due to government inaction.
2018	The Dutch Public Health Foresight Study is undertaken, providing the basis for the National Health Policy Memorandum. The Trend Scenario is the baseline for the National Prevention Agreement.
2020	The Judicial branch of the Council of State rules in favour of young climate activists who sue the state for failing to take their needs into account when considering opening up oil fields; plaintiffs win.



New Zealand

Why was this case study selected?

New Zealand was chosen as a place where investment in foresight has been driven across specific departments and topics and where a sense of stewardship is one of the drivers of foresight activity.

4 Comparability to UK system
Medium/high.

5 Activity across the ecosystem
High.

4 Impact at system levels
Medium/high.

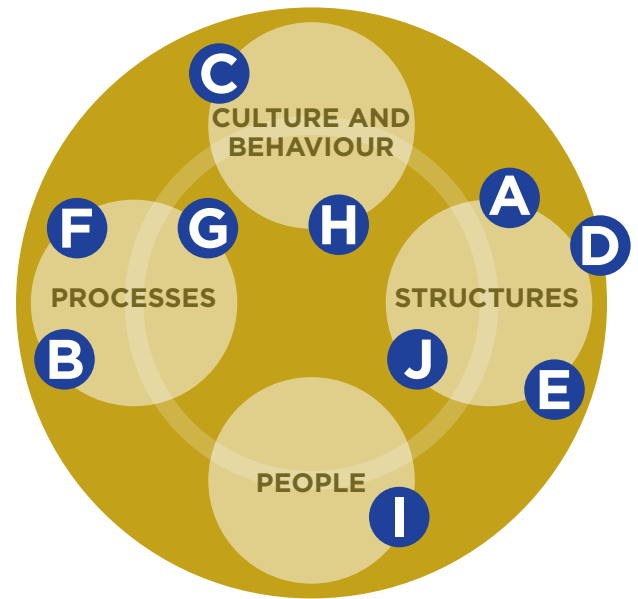
5 Level of innovation
High.

Key themes

- Work to secure long-term thinking often done by setting up bodies that advise or inform government.
- Individual ministries, particularly defence, have their own in-house foresight capability that plays an ongoing role in policy development and decision-making.
- Relatively little investment in formal foresight capability and a sense that short-term continues to dominate, particularly in the parliament and the mainstream policy spaces.

Capability features for a sustainable foresight ecosystem

- A. The Public Service Act 2020 requires long-term insight briefings be produced by the chief executive of each government department every three years. The briefing, which is unclassified, is to address medium- and long-term trends, risks and opportunities.
- B. The 2019 Wellbeing budget, followed by the 2020 budget, sets out investment in activities for the long-term.
- C. New Zealand endeavours to draw on methods from Maori to bring together multiple views and manage complexity. Maori culture has a concept of stewardship - kaitiakitanga -which means collective guardianship, for the sky, the sea and the land
- D. Foresight capability exists in a number of public service departments including the Ministry of Foreign Affairs and Trade and the Ministry of Defence. The Ministry of Defence is staffed mainly by civilians and co-leads long-term defence thinking with the non-public service New Zealand Defence Force.
- E. The National Library and Archives New Zealand, semi-autonomous business units of the Department of Internal Affairs, a central public service agency, have capacity as do health systems in places such as Canterbury.



- F. The strategy unit of the Inland Revenue Department, the public service department responsible for tax revenue and advising tax policy, uses foresight methods in their work. A recent restructure has downgraded the size and prominence of the unit.
- G. Some parliamentary mechanisms exist though the Parliamentary Commissioner for the Environment has scrutiny and review capacity to support for long-term management of resources including preventative measures.
- H. There is a history of foresight being used in crisis response and risk management, with a centrally coordinated response, but strong integration into communities and private sector.

- I. Semi-formal networks bring together public servants interested in foresight but are typically unfunded. Academics, non-profit organizations and some private providers play a role in supply and knowledge transfer. The National Assessments Bureau conducts strategic assessment and sits in the Department of the Prime Minister and Cabinet.
- J. The Ministry of Transport uses foresight methods as inputs to the long-term transport plans they are legislatively required to produce. The Treasury have quite a long-standing (but small) team of economic forecasters responsible for providing the long-term fiscal forecasts required by the Public Finance Act.

Timeline	Key milestones
1936	Institute of Public Administration (IPANZ) established and produces forecasting and planning documents for New Zealand.
1960	The Industrial Development Conference held with the aim to develop a shared vision for economic diversification.
1977-1982	New Zealand Planning Act 1977 establishes the Commission for the Future and the New Zealand Planning Council. The Commission for the Future was disbanded in 1982.
1986	Environment Act of 1986 establishes the Parliamentary Commissioner for the Environment.
2001	New Zealand Post invites the public to submit their visions for the future of the nation as part of introducing the Kiwibank.
2002	State Services Commission began conducting futures research and developed the Futures Programme. As interest in futures projects increased, the Commission developed the Future Practitioners Forum, a network to support public servants in foresight. The Local Government Act 2002 mandated that local authorities create long-term plans for a minimum of 10 years.
2004	The Public Finance Act is modified to include every four years the Treasury is to report on the country's fiscal position, projecting out a minimum of 40 years.
2006-2007	The Maori Future Makers programme is established in the Ministry of Maori Development.
2013	The State Sector Act 1988 is amended to include 'stewardship', defined as 'active planning and management of medium and long-term interest, along with associated advice'.
2016	The Future of Work Commission report is published by the New Zealand Labour Party.
2020	<p>The State Sector Act 1988 repealed and replaced with Public Service Act. Changes include a shift responsibility from individual agencies to the collective and a more unified approaches to public service. The Act also requires long-term insights briefings be produced by the chief executive of a department every three years. The briefing, unclassified, is to address medium and long-term trends, risks and opportunities related to New Zealand. Long and medium term are undefined in the legislation.</p> <p>The Department of Prime Minister and Cabinet (DPMC) is developing a horizon-scanning approach to improve long-term thinking on matters relating to national security strategy and to strengthen the National Risk Framework. The aim is to aid cross-government priority setting and influence strategy formation so that it is more resilient, far-sighted and adaptable. DPMC has been looking to approaches taken by other nations in this area and is using the Three Horizons model as the base approach. DPMC is working across government on horizon scanning with engagement likely over 2021. DPMC and Ministry of Business, Innovation and Employment are interested in scanning and impacts, risks and opportunities of emerging technologies. Initial conversations are starting to take place now and are anticipated to lead to a cross-government, strategic approach.</p>



Singapore

Why was this case study selected?

Singapore is regularly referenced as the most developed foresight ecosystem in the world. Established by a highly effective champion, there are clear structures and processes for foresight with impact.

2 Comparability to UK system
Medium/high.

5 Activity across the ecosystem
High.

5 Impact at system levels
Medium/high.

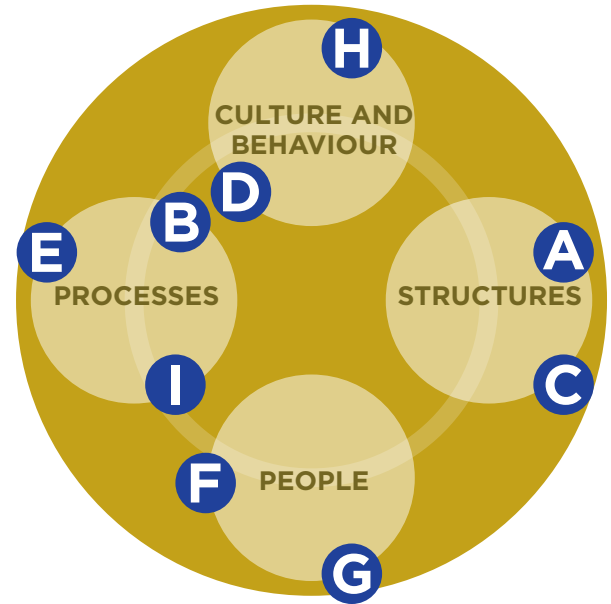
5 Level of innovation
High.

Key themes

- Foresight has played a role from independence, helping to frame a national vision that is live to the geo-political location and the resources available. Focus is on highly skilled people as a primary resource.
- Strong and long-standing pieces of foresight infrastructure that have matured over time. Established and led by a highly effective champion.
- Investment in building a foresight-aware and literate civil service.

Capability features for a sustainable foresight ecosystem

- A. The Centre for Strategic Futures (CSF) is a longstanding unit delivering and coordinating foresight work across government and with partners.
- B. “Scenario Planning Plus” (SP+) tool developed by CSF is used by government bodies to engage in scenario planning and to examine likely and less likely signals and trends in preparation for the future.
- C. The Strategic Futures Network (SFN) brings together senior policy-makers to introduce new vocabulary and build awareness of emerging ministries.
- D. CSF focuses on ensuring its work has policy impact, to maintain relevance and support. To that end, it will work on projects with varying timeframes from relatively near-term to long-term.
- E. Strong knowledge-transfer including learning from their foresight journey in regular in-depth reports about what has worked and what could be better.
- F. Foresight infrastructure and resource established by a vocal, effective and very senior champion who integrated foresight into all of the roles he played and plays across Singapore government.
- G. Invests in, develops and rewards foresight skills including through training in the civil service college. Foresight skills seen as enablers of promotion and long-term success in the civil service.



- H. Has invested in using and improving methods for engaging a broad audience, including the wider civil services and the public.
- I. The CSF, together with the National Security Coordination Secretariat, hosts the biennial Foresight Week to support network building and identification of emerging issues. The most recent, in 2019, comprised the International Risk Assessment and Horizon Scanning Symposium (IRAHSS) with the theme “The Futures Reimagined” and the Foresight Conference with the theme “Society 4.0”.

Timeline	Key milestones
1980s	The Ministry of Defence uses scenario planning in its work.
1991	Risk Detection and Scenario Planning Office established in the Ministry of Defence.
1995	Risk Detection and Scenario Planning Office as moved to the Prime Minister's Office's Public Service Division (PSD). Scenario Planning Office set up in the Prime Minister's Office.
2003	The Scenario Planning Office became the Strategic Policy Office (SPO), furthering the links between foresight and strategy. The International Risk Assessment and Horizon Scanning Symposium is established as a biennial event for leaders across the world to consider shared future risks.
2004	The RAHS programme was set up in the National Security Coordination Secretariat (NSCS). The overarching foresight infrastructure of the government, the RAHS programme comprised the RAHS Experimentation Centre and the Horizon Scanning Centre (HSC).
2009	Scenario Planning Plus (SP+) toolkit developed at the Horizon Scanning Centre in 2009 to complement and enhance the use of foresight in government.
2010	The Centre for Strategic Futures (CSF) set up as a think tank for foresight within the public sector. The Strategic Foresight Unit (SFU) was established under the Ministry of Finance and had responsibility for ensuring that government future work is built into budgeting. Within SPO, the Strategic Foresight Network (SFN) was established, led by the head of the civil service of Singapore.
2012-2013	Singapore hosts Our Singapore Conversation (OSC) where citizens were convened to discuss the future.
2015	The Future of Us Exhibition encourages visitors to learn about the possibilities for future of Singapore and share their thoughts on the future. CSF became part of the Prime Minister's Office's strategy group. Singapore hosted and part funded UNDP's Global Centre for Public Service Excellence (runs for 4 years). One of its four priorities at the time was expertise in building foresight capability. The GCPSE has since been reconstituted with a new agenda.
2019	Biennial Foresight Week hosted by CSF and the NSCS, comprising the International Risk Assessment and Horizon Scanning Symposium (IRAHSS) with the theme "The Futures Reimagined" and the Foresight Conference with the theme "Society 4.0".



United Arab Emirates

Why was this case study selected?

The United Arab Emirates (UAE) was chosen to provide insight from a system with significant investment in foresight and futures within a governing context that is different than the UK.

1 Comparability to UK system
Low.

5 Activity across the ecosystem
High.

3 Impact at system levels
Medium.

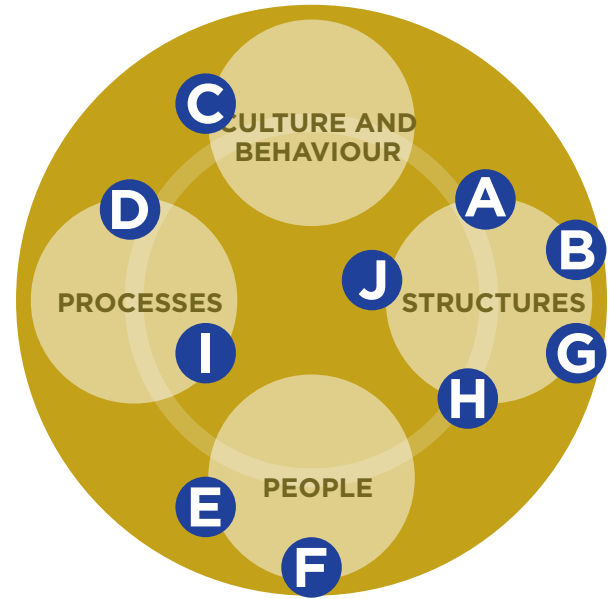
5 Level of innovation
High.

Key themes

- Strong drive for security following independence, including through economic diversification and social security.
- Foresight mixed between executive (Ministry of Cabinet Affairs) and bodies funded by government, such as the government-backed Dubai Future Foundation.
- Long-term visions set out developmental pathway, with strong emphasis on how emerging technology can transform society.

Capability features for a sustainable foresight ecosystem

- A. Ministry of Cabinet Affairs (MOCA) is a central function that provides support to Cabinet and all ministerial councils. Responsible for building futures work into all government strategy and vision, with recommendations to the Prime Minister and Cabinet of the UAE.
- B. Dubai Future Foundation (DFF) is a government-backed foundation inaugurated in 2016 by a Dubai government public statement to work on projects that promote long-term thinking and support long-term goals in Dubai. DFF has strong links to government, but is able to be more agile. It has a research, agenda setting, capability and partnership building agenda, but limited capacity to enforce implementation.
- C. Strong reliance on relational politics. Understanding culture and power dynamics and cultivating relationships and allies.
- D. Long-term Vision for UAE 2021 and UAE Centennial Plan 2071 create shared ambition and cohesion.
- E. Dual investment in bringing in expertise to deliver and support knowledge transfer.
- F. Dubai Future Academy provides government and private sector training.
- G. The Museum of the Future launching in 2021 will be a AI-generated building providing public-facing immersive foresight work to educate public,



- H. Ministers and civil servants. This builds on previous immersive experiences that were a central feature of the World Government Summit.
- I. UAE hosts the World Government Summit and has a partnership with the World Economic Forum to host the Centre for the Fourth Industrial Revolution in the UAE. Strengthens networks, allows for experimentation and testing of emerging technology and identification of international best practice to apply to the UAE context.
- J. Use of mixed, multiple and innovative methods to enrich processes and to create buy-in to insights and work.
- K. National Advanced Sciences Agenda 2031 focuses on the long-term. Ministry of State for Advanced Sciences also focuses on the long-term of science.

Timeline	Key milestones
1971	The United Arab Emirates was founded as a constitutional federation of six emirates in 1971, following a declaration of independence from the UK. A seventh emirate joined the federation a year later.
1990	The Future Foresight and Decision Support Centre is established to support the Dubai Police General Command.
2007	Launch of first Government Strategy putting forth a strategic framework for government and public administration beginning of a series of government reforms, including restructuring ministries and departments, aligned around a Vision for UAE in 2021.
2010	UAE Vision 2021 launched.
2016	<p>The Dubai Future Foundation (DFF) is established by the government in order to institutionalise futures work and deliver initiatives around knowledge sharing, imagination, capacity building and future design.</p> <p>Creation of the UAE Future Foresight Platform (focused on resources for foresight, capacity-building and knowledge sharing), the Future Foresight Strategy and annual networked meetings for Shaping the Future of the UAE.</p> <p>UAE government partners with the World Economic Forum (WEF) to host the Annual Meeting for Shaping the Future is an annual conference in January about Future of Governance.</p>
2017	<p>The Future Foresight Strategy sets out the aim to build national capacity with foresight; design future models for education, health, development and environment; build partnerships internationally; and institutionalise foresight as a feature of strategic government planning.</p> <p>Appointment of Minister of State for Artificial Intelligence and Minister of Cabinet Affairs.</p> <p>The Future Foresight Platform (FFP) was launched to be a virtual platform to share foresight knowledge and capacity-building materials.</p>
2018	National Advanced Sciences Agenda 2031 and the 2021 Advanced Science Strategy. The 2031 Agenda sets out eight scientific priorities up to 2031 with 30 specific scientific targets for 2021. Ministry of Advanced Sciences established to deliver the plan.
2020	<p>The UAE Centennial Plan 2071 is designed to map the government’s work to “fortify the country’s reputation” and invest in future generations. Annual meetings will be held to help unify efforts across federal and local levels and aid sector participation towards 2071.</p> <p>The Dubai Future Foundation and the World Economic Forum open the Centre for the Fourth Industrial Revolution UAE (C4IR UAE). The centre is a public-private collaboration for parties to share technological developments related to the fourth industrial revolution.</p> <p>Expo 2020 planned with a strong futures component – now postponed to 2021.</p>



United States*

Why was this case study selected?

The USA has a large central government infrastructure. Each state also carries significant policy authority for domestic areas in their localities. There is a long history of foresight practice at national and local level, with pockets of sustained activity in some areas.

3 **Comparability to UK system**
Medium.

3 **Activity across the ecosystem**
Medium.

4 **Impact at system levels**
Medium/high.

5 **Level of innovation**
High.

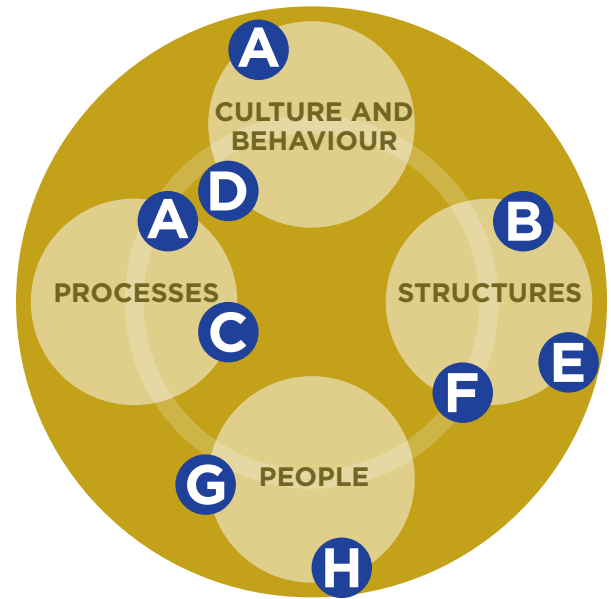
Key themes

- Foresight in the US began primarily in the military after WWII, with organisations like RAND developing scenarios and other techniques to support national ambitions.
- Since 1997, the National Intelligence Council has published an unclassified strategic assessment of how key trends and uncertainties might shape the world over the next 20 years. This is a bedrock document for American foresight work and used by systems across the world.
- Some parts of government have strong and long-lasting foresight capabilities with decentralised capacity across federal government.

*The USA is the largest and most complex system in our review; this overview reflects what we were able to gather in the resources of this project, with a dominant focus on the federal community.

Capability features for a sustainable foresight ecosystem

- A. Global Trends published every 4 years by the National Intelligence Council. Designed to provide context for the incoming presidential administration (even if second term). Strong role for outreach and engagement internationally with experts, universities, think tanks, science labs, businesses and government institutions.
- B. Decentralised foresight capacity exists across federal government, including Central Intelligence Agency (CIA), U.S. Air Force, U.S. Coast Guard, U.S. Forest Service, Office of Public Management, National Aeronautics and Space Administration (NASA).
- C. As part of a four-year planning cycle, Veteran Affairs and the U.S Coast Guard (USCG) conduct an intensive scanning exercise that is then continued in smaller efforts through the cycle. The activity feeds into recommendations that are formulated as a foresight report for the new cycle's Commandant. This then feeds into a strategic plan issued by the new office holder.
- D. Strong networks of practitioners exist both nationally and internationally including the US Federal Foresight Community of Interest (FFCOI) and the Public Sector Foresight Network (international).



- E. Government Accountability Office has a remit to provide analysis of how federal agencies manage and adopt technologies. They have been using foresight to inform their assessment of emerging technology; and are advancing how supreme audit institutions use foresight and scenario planning.
- F. Other areas where foresight is effectively being practiced but not institutionalised into a policy-making framework for foresight activity at the national level include the President's Council of Advisors on Science and Technology and the President's Council on Jobs and Competitiveness. These are operators who sit outside policy arenas but have the mandate to study implications of future policy-making through a group of experts.

- G. Interviewees noted the importance with the US system of having close advisors who can provide a critical perspective, with trust, but outside of the political or strategic agenda. The importance of visual communication has also been highlighted with intelligence and other agencies.
- H. Many departments have developed in-house programmes, including through partnerships with futures studies programmes such as those at the University of Hawaii and University of Houston.

Timeline	Key milestones
1945	<p>The U.S. Government works with Federally Funded Research and Development Centers (FFRDCs) and other think tanks to inform public sector decision-making.</p> <p>For example, Project RAND, an organization formed immediately after World War II to connect military planning with research and development decisions, separates from the Douglas Aircraft Company of Santa Monica, CA, in May 1948 to become an independent, nonprofit organization dedicated to furthering and promoting scientific, educational and charitable purposes for the public welfare and security of the United States.</p>
1970	<p>Futurist Alvin Toffler releases Future Shock, which introduced the concept of “anticipatory democracy”, where citizens and government are future-conscious in decisions.</p>
1971	<p>The Hawaii State Legislature created the Hawaii Research Center for Futures Studies at the university of Hawaii.</p>
1972	<p>US Congress establishes an Office of Technology Assessment (OTA) to support policy-makers with information on technology and science topics. Dismantled in 1995.</p>
1974	<p>House of Representatives in Congress rules that nearly all standing committees of the House must undertake forecasting efforts on “matters within the jurisdiction of that committee.” This rule still exists but has very rarely ever been exercised.</p>
1982	<p>The Program of the Future established at the University of Houston in Texas.</p>
1990s	<p>The first Global Trends report published by the National Intelligence Council, in partnership with global experts to anticipate upcoming changes and their impact on policy-making.</p>
2000	<p>First National Intelligence Committee Global Trends report published as unclassified.</p>
2008	<p>The Project for National Security Reform (PNSR), a nonprofit and nonpartisan organization focused on national security, released the ‘Forging a New Shield’ report which names the importance of foresight.</p>
2010	<p>CIA’s Emerging Trends Program begins, with the aim to pinpoint trends relevant to intelligence. Products are shared across different agencies of the intelligence community</p> <p>The US Federal Emergency Management Agency (FEMA) launched its Strategic Foresight Initiative (SFI).</p>
2013	<p>The Department of Veteran Affairs established the Federal Foresight Community of Interest (FFCOI) to foster exchange of foresight practices and methods between think tanks, federal workers, strategists and industry.</p>

Timeline	Key milestones
2018	Government Accountability Office (GAO) develops a Center for Strategic Foresight which reports to Congress and serves as a cross-cutting organization, housing eight non-resident foresight fellows with international expertise across the public sector, private sector, the third sector and academia.
2019	An inaugural conference held to explore US national security based on the themes of “deep space” and “deep fakes” or disinformation and fake news on social media.



SCHOOL OF
INTERNATIONAL
FUTURES