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CHANGE

A Leaders' Guide to Building a Tech- Forward Foreign Policy

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Executive Summary

The tech revolution is forcing governments to articulate coherent strategies that will maximise their impact across a new set of foreign-policy issues. Countries with a clear picture of the interdependent global challenges at play are best placed to solve them.

The backbone of technology, the free, open internet, is under threat, a victim of fragmentation: governments, unable to understand and adapt to the technology ecosystem, are often dealing with emerging issues discretely and in isolation from each other, seizing short-term gains at the expense of long-term security, stability and prosperity.

As technology converges with all aspects of policy, governments cannot afford to treat its role in foreign policy as an afterthought. Global cooperation will be essential. New coalitions such as our proposed D10-led Digital Infrastructure and Defence Alliance (DIDA) can facilitate this cooperation across the broad spectrum of tech-policy issues, from peace and security and trade and economic development to humanitarian assistance.

But for many countries, being able to maximise the opportunities offered by such coalitions will require a significant upgrade of government structures, institutions and personnel. Without integrating tech into their foreign-policy strategies, governments' diplomatic efforts will fall short of what's required to navigate a new era of technology-driven geopolitics.

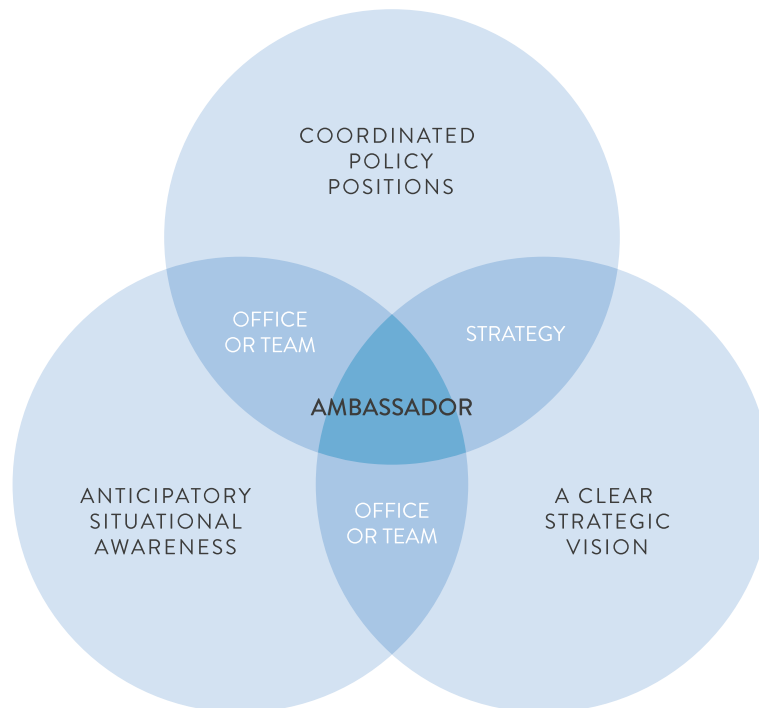
A handful of countries have already taken the lead on addressing this challenge, implementing at least one of the following three measures for tech-forward foreign policy:

1. Appointing a dedicated tech, digital or cyber-ambassador
2. Creating a dedicated team or office in foreign-affairs ministries to manage tech foreign policy
3. Drafting a dedicated technology-focused foreign-policy strategy

By leveraging these measures, governments can gain a competitive advantage over those who are yet to adopt them. Additionally, three capabilities are essential to success in a new tech-shaped geopolitical era:

1. **Anticipatory situational awareness:** staying ahead of technological change and its impact on international dynamics
2. **Coordinated policy positions:** reducing complexity in both domestic and foreign policy initiatives
3. **A clear strategic vision:** driving policy in line with priorities, values and interests

Figure 1 – Prioritisation framework



Source: TBI analysis

This report acts as a guide for policymakers, presenting the findings of a unique data set surveying the tech-diplomacy initiatives introduced by foreign ministries, setting out the steps that governments can take to move towards a tech-forward foreign policy and outlining the underlying policy choices required to tailor these steps to meet countries' varying interests and capabilities.

There is no “one size fits all” model. Countries should prioritise the measures that solve their most pressing needs. This report's three decision trees, found in the final chapter on building tech-forward foreign-policy framework, can help policymakers choose the right model for their specific circumstances and policy goals.

Being able to adapt to and shape the shifting ecosystem is essential to maintaining – or improving – every government's position on the international stage. The rules for the next several decades are being written now, and those without a tech-forward foreign policy risk being left behind.

The New Tech Foreign-Policy Environment

“I needed scientists and technologists in the room just to tell me whether I needed scientists and technologists in the room ... to help identify the problems and help identify some of the solutions. I became more and more convinced that virtually everything on our agenda has some tech or science or innovative component to the solution. So we need to do a better job bringing that knowledge, that expertise, that focus into the department and to everything we do.”

US Secretary of State Antony J Blinken

The technological revolution has triggered four key macrotrends that have shaken domestic and foreign-policy agendas: an increase in the speed of technological change; proliferation of technologies and stakeholders; heightened competition for resources and influence; and fragmentation of the global and domestic ecosystem. Failure to fully counteract the internal and external effects of these trends is leaving countries at a disadvantage in their engagement on the geopolitical stage.

Figure 2 – External and internal effects of macrotrends

External effect	Macrotrend	Internal effect
Rapid evolution of technology and its uses, threats and opportunities	Increased Speed	Government response lags behind, lacking legislation and regulation

Increasing number of technologies, relevant geographies and stakeholders to manage in international policy ecosystem	Proliferation	Increasing number of technologies, initiatives and stakeholders to manage within domestic-policy ecosystem
Race for critical infrastructure, resources, and control over standards and governance models	Heightened Competition	Lack of unified, holistic approach in domestic policymaking and international implementation
Techno-nationalism, and splintering internet infrastructure and systems	Fragmentation	Increasing number of ministries and departments working on tech (at home and abroad)

Source: TBI analysis

Speed of Technological Change

The exponential adoption of technology, driven by Moore's Law and an ever-growing public appetite for technological solutions, has overwhelmed mechanisms for regulatory, legislative and policy development. Governments find themselves ill-equipped to address the challenges of technology domestically, let alone manage its international implications. This "pacing problem" – when technological change outpaces governmental ability to respond – is fuelled by three interconnected challenges:

1. Leadership keeping up with the velocity of technological evolution
2. Legislation keeping up with executive decision-making
3. Leadership maximising the opportunities of technology

Governments are consistently one step behind. As the largest regulatory markets work hard to rein in web2 tech titans, web3 – the next iteration of our world-wide web – is already knocking on the doors of government. The benefits of digital transformation are threatened by increasingly sophisticated and daring state-sponsored and opportunistic cyber-attacks against critical public infrastructure. Viral misinformation or disinformation campaigns impact public-health efforts, and innovative means of

interference threaten the integrity of electoral processes faster than governments can move to protect them.

A New Set of Stakeholders

The advent of a new cadre of public, private and civil-society stakeholders has radically reshaped how tech foreign policy is formulated at home and how it is implemented abroad. As Kaja Ciglic, senior director of digital diplomacy at Microsoft, put it: “Cyber diplomacy is different from other forms of diplomacy, because it is the first real multi-stakeholder diplomacy.”

From Microsoft establishing a permanent office at the United Nations in New York in 2020 to the state-like geopolitical role that private companies such as Meta have begun to play, a new paradigm of public-private interaction has emerged. This has been matched by the critical influence of civil-society actors in multi-stakeholder dialogue on core technology issues.

The White House’s decision to delay the launch of its Alliance for the Future of the Internet at the Summit for Democracy, reportedly due to concerns from digital-rights groups and US government officials that neither civil society nor government agencies were sufficiently consulted, is a case in point.

Coordinating an array of alliances – particularly smaller minilaterals, which are proving crucial in helping governments create common or, at least, aligned policy in the international environment – creates new demands that traditional diplomacy is ill-equipped to tackle.

New Arenas of Competition

As governments seek to ensure their economic and national security, as well as to cement their place in the new technological world order, foreign policy now needs to address ever-expanding areas of geopolitical competition. From transnational competition for critical, rare-earth minerals and supply-chain security, to leading the way on setting the international norms and standards or shaping the regulatory environment for technology, governments must have a clearly defined and holistic understanding of not only their own priorities, interests and values, but those of others as well. At the minimum, countries now need to articulate their approaches to international cooperation on infrastructure, technical standards, regulation and resources. If this strategic clarity is lacking, international action will become muddled, leading to ever-increasing fragmentation.

Fragmentation

The quest for dominance in the new era of geopolitics places the global, open internet under threat. Competition between nation states to reassert authority over the internet and its architecture, from technical standards through to supply chains, down to its submarine data cables, has created a new series of structural battles split along ideological lines.

Domestic policymaking ecosystems are characterised by similar fragmentation. There has been a proliferation of departments, offices and teams tasked with dealing with the demands of emerging technology across public institutions. This fragmentation complicates the formulation and coordination of coherent strategies that can respond to the challenges of this new technology-policy environment.

Integrating Tech into Foreign Policy

Few governments have taken decisive steps to streamline their approach to managing the demands of the new foreign-policy environment. Much of this adaptation has fallen on foreign-affairs ministries, the traditional custodians of foreign policy and diplomacy, requiring them to develop three key capabilities:

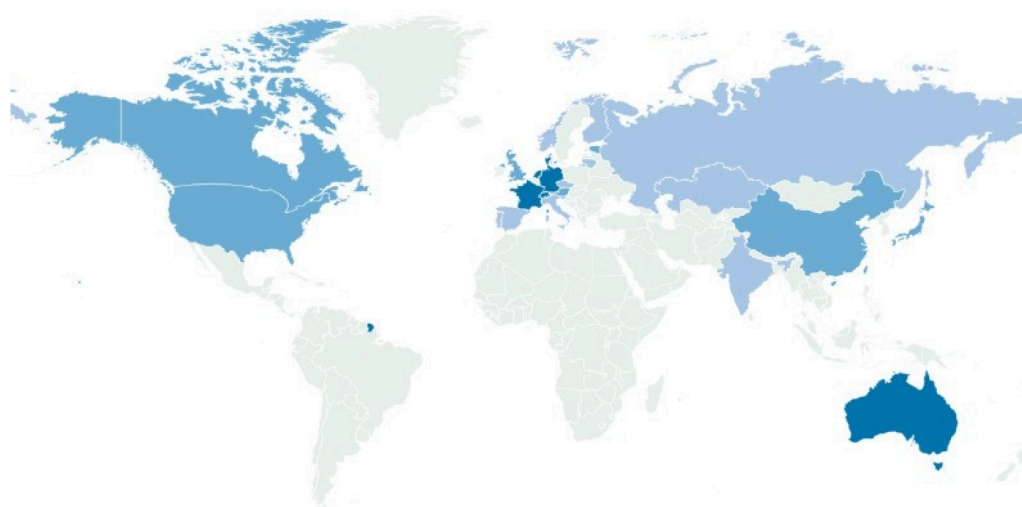
1. Maintaining situational awareness and keeping up with technological change and its impact on international dynamics
2. Coordinating positions effectively at home and abroad to better align tech policy and reduce complexity
3. Driving tech policy implementation with a clear strategic vision and set of priorities, values and interests

We have identified three primary measures foreign-affairs ministries have deployed to strengthen these capabilities:

1. Appointment of dedicated tech diplomats
2. Creation of a dedicated department, office or team, housed in foreign-affairs ministries
3. Drafting of dedicated tech foreign-policy strategies

Figure 3 – Countries that have introduced one or more foreign-policy measures to integrate tech

Number of measures: 1 2 3



Source: TBI analysis

Each government's choice of approach has depended upon its own priorities, unique circumstances, and existing capacities and capabilities. The following sections will consider these policy choices and highlight what each measure can offer in dealing with the increasing complexity of the global tech ecosystem.

Figure 4 – Key tech foreign-policy choices that governments face

#	Action	Key choices
1	Diplomats	1. Single dedicated tech ambassador or network of specialist diplomats?
		2. Areas of responsibility?
		3. Required background and skillsets?
2	Office/ team	4. Dedicated team for tech diplomacy needed?
		5. Mandate of a dedicated tech office/team?
		6. Location of dedicated tech entities?
3	Strategy	7. A dedicated tech foreign-policy strategy, or tech foreign-policy considerations incorporated into existing strategies?
		8. A comprehensive or indicative strategy?

Source: TBI analysis

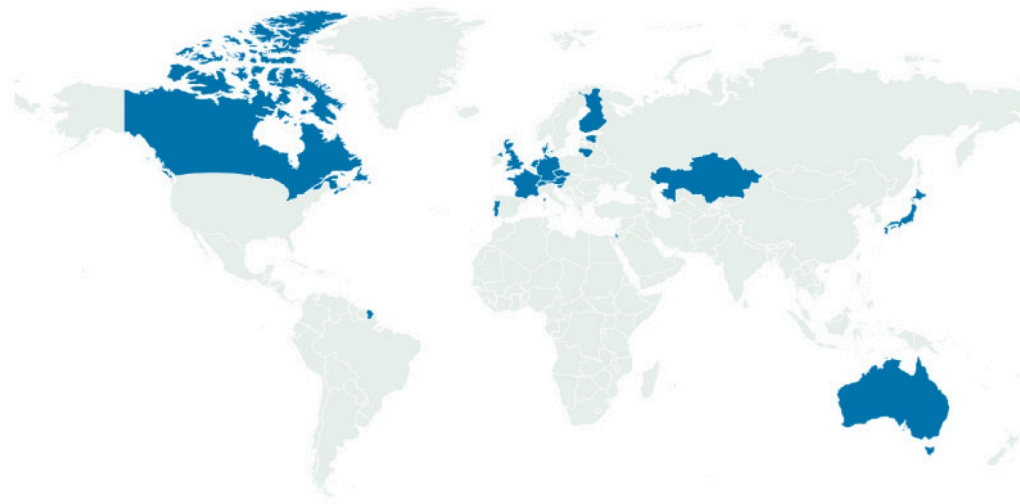
Measure 1: Dedicated Tech Diplomats

“Clearly projecting the UK’s tech policies into other parts of the world is something that’s very important that we do [...] But funnelling some of that information back into parts of the UK system [is equally important].”

Joe White, British technology envoy and consul general in San Francisco

This is currently the most popular measure for countries seeking to integrate tech and foreign policy. By our count, a total of 19, mostly European, countries¹ have appointed verifiably active, dedicated tech diplomats.²

Figure 5 – Countries that have appointed a dedicated tech diplomat



Source: TBI analysis

Tech diplomats generally focus on four main responsibilities:

1. **Advising on domestic policy** to make sure thinking, policy and regulation stay current with international trends and priorities
2. **Coordinating and pursuing alignment on policy** at home and in international multilateral, minilateral and bilateral fora to present a unified, whole-of-government policy position abroad
3. **Defining, representing and promoting the interests, values and capabilities** of their home country abroad
4. **Creating policy and strategy**, leading or contributing as required, both domestically and in international fora

Governments face a series of important decisions on this measure, including the choice between having a single dedicated tech ambassador or a network of specialist diplomats placed in embassies across a number of strategic locations. Governments seeking to determine the most suitable tech-diplomacy model would also need to consider their representatives' primary areas of responsibility, and the background or skillset that these representatives would ideally possess.

Denmark's Tech Ambassador

In 2017, Denmark appointed the world's inaugural tech ambassador, Casper Klynge, to expand the traditionally state-focused scope of diplomacy to include private companies, and to engage tech giants like Meta (formerly Facebook) and Google as significant and influential geopolitical powers. While the ambassador received a global mandate, offices were established in Copenhagen, Silicon Valley and Beijing. The tech ambassador, and Denmark's broader tech-diplomacy efforts, had six primary goals:

1. Represent the Danish government's interests in relation to the global tech industry
2. Use acquired knowledge to advise government, support innovation and make sure that technology issues remain high on the foreign- and security-policy agenda
3. Act as a coalition-builder abroad, encouraging cooperation between other countries and companies, civil society and others
4. Contribute to Danish public debate on technological development and the influence of the tech industry
5. Support policy development to ensure that Denmark can respond to new challenges
6. Be a global champion of Denmark abroad, promoting the export of Danish tech and foreign-investment opportunities

Dedicated Tech Ambassador or Network of Specialist Diplomats?

When designing an optimal tech-integrated foreign policy, governments can choose between appointing a dedicated tech ambassador for focused engagement or creating a network of tech diplomats deployed across the globe. Both options can provide distinct advantages when it comes to tech diplomacy.

Figure 6 – Advantages and disadvantages of dedicated ambassadors versus a network of specialists

	Dedicated ambassador	Network of specialists
Advantages	<ul style="list-style-type: none"> • Easier to strengthen bilateral ties, or gain access to key markets • Enhanced access to high-profile stakeholders (e.g. tech leaders), particularly for smaller countries 	<ul style="list-style-type: none"> • Covers larger number of geographies and markets, providing more holistic view. • Easy to adjust strategic placement of personnel as needed
Disadvantages	<ul style="list-style-type: none"> • Difficult to set up without know-how • Resource-intensive 	<ul style="list-style-type: none"> • Needs strong, centralised coordination
Examples	<ul style="list-style-type: none"> • Denmark appointed a tech ambassador with a global mandate to engage leading tech companies, with offices in Copenhagen, San Francisco and Beijing • The UK appointed a consul general with a business background to represent British interests in San Francisco, the home of major tech companies 	<ul style="list-style-type: none"> • China created a network of around 140 specialised diplomats to identify and support the acquisition of emerging tech companies and technologies across the globe • The US created the Office of the Coordinator for Cyber Issues in 2011, led by a coordinator, with a global network of more than <u>150 cyber-policy officers</u>

Source: TBI analysis

Chinese Tech Diplomats

The Department of International Cooperation in China's Ministry of Technology employs around 140 tech diplomats, stationed in embassies across more than 50 countries, with a focus on North America, Europe and East Asia. These specialist diplomats are tasked with monitoring technological breakthroughs and identifying investment opportunities in their host countries, "forming a bridge between foreign and domestic entities".

Between 2015 and 2020, these science and technology diplomats identified 642 potential opportunities for Chinese stakeholders, created by 335 unique targets (primarily private companies and university researchers) across 37 countries.

While having a dedicated ambassador can deliver multiple benefits and generate significant media attention, networks of tech diplomats also offer strategic advantages. China and the US seem to be following the latter model, with experts placed in relevant embassies around the globe tasked with monitoring global science, technology and cybersecurity developments and opportunities. While these countries do not have dedicated tech ambassadors, they do have strong central coordination mechanisms to drive their agendas and the networks' efforts.

US State Department's Office of the Coordinator for Cyber Issues

In 2011, Secretary of State Hillary Clinton announced the establishment of the Office of the Coordinator for Cyber Issues within the State Department. The announcement came shortly before the release of the Obama administration's International Strategy for Cyberspace in the same year, signalling the rapidly growing significance the administration attributed to tech in foreign policy.

While the coordinator's position, currently held by Deputy Coordinator Michele G Markoff, has not been elevated to the level of an ambassador, Markoff nevertheless has a mandate similar to that of a tech ambassador:

- Leading engagement in bilateral and multilateral fora (such as UN negotiations on a framework for responsible state behaviour in cyberspace) in pursuit of preserving an open, interoperable and secure internet
- Coordination within the State Department and the broader domestic policymaking system

To handle both of these responsibilities and more, the coordinator and her office rely on the support of the network of more than 150 cyber-policy officers posted in US diplomatic outposts across the world, in addition to cyber officers in regional bureaus.

It is worth noting that the Office of the Coordinator will likely undergo significant changes following the future establishment of a Bureau of Cyberspace and Digital Policy, which will be headed by a Senate-confirmed ambassador-at-large.

Areas of Responsibility?

“We see ourselves ... as a translator between different worlds. And given this time of societal digital transformation, I think that diplomacy is what is needed.”

Martin Rauchbauer, former Austrian tech ambassador and consul in San Francisco

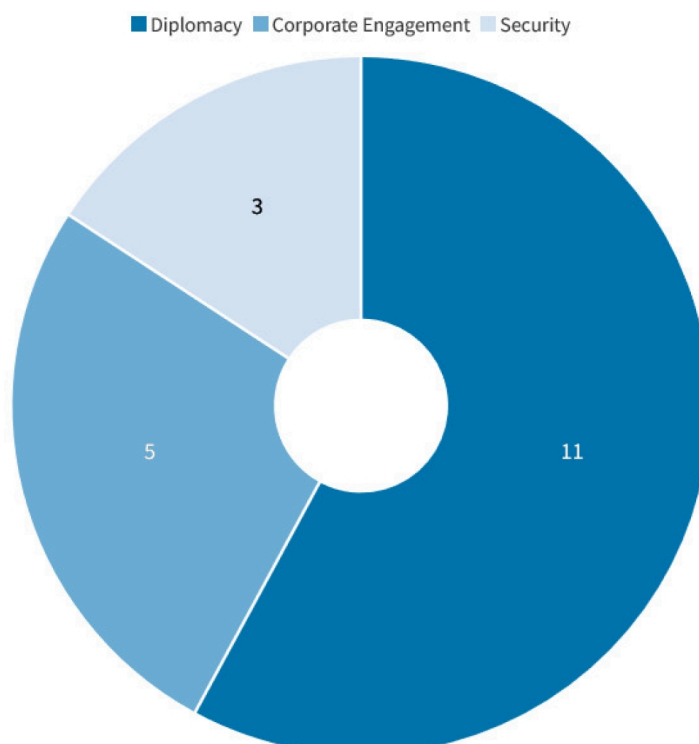
Having decided upon a dedicated tech ambassador, rather than a network of specialised diplomats, the second choice governments and leaders must make is to define the scope of responsibility. Our study

shows that the focus areas of the current cohort of 19 verifiably active ambassadors are split into three broad and overlapping categories:

1. **Diplomacy:** diplomatic engagement on tech-related opportunities and challenges (such as internet governance), including representation of the state's interests in bilateral, minilateral or multilateral fora
2. **Security:** international cooperation on cybersecurity, including emergency response, development of early-warning networks, attribution of attacks and building transnational alliances
3. **Corporate engagement:** engagement with prominent private companies in one or more geographies

While ambassadors' mandates tend to span all of these domains with more or less focus on particular areas, for this analysis we identified primary fields of focus based on publicly available documents and statements about the role that the ambassadors play in each country.

Figure 7 – Breakdown of the 19 countries in our study with dedicated ambassadors, by primary focus area



Source: TBI analysis

What Background and Skillset Does a Tech Ambassador Require?

“What my background [in business] allows me to do is to act as a translation layer between the tech businesses and the policymakers because I think ... the real risk is that they’re just not hearing each other in some of these debates.”

Joe White, British technology envoy and consul general in San Francisco

Once governments and leaders have chosen to appoint a dedicated tech ambassador, the final key consideration is the required background or skillset of that ambassador. Our study showed that the tech ambassadors largely came from one of three types of background:

- **Government and policy:** diplomats or personnel with substantial experience in government or policy, not necessarily related to science or technology
- **Business:** former business leaders and entrepreneurs
- **Academia:** scholars with backgrounds in technology and science-related fields

Figure 8 – Advantages and disadvantages of background and skillset options for dedicated tech ambassadors

	Government and Policy	Business	Academia
Advantages	<ul style="list-style-type: none">• Existing foreign-affairs or government experience• Good understanding of how government	<ul style="list-style-type: none">• May have better understanding of technologies and tech/business culture• Existing understanding of how start-ups or big business work	<ul style="list-style-type: none">• Expert scientific advice to leadership within own field• Existing network of academics and members of broader scientific community

	works in practice	• Easier access to business community	• Can place more focus on science- and tech-diplomacy efforts
	• Established public-sector contacts enabling coordination with domestic systems		
Disadvantages	• May face difficulties when engaging private sector	• May face difficulties in more “political” or policy-focused aspects of work	• May lack experience in government and policy, or business understanding
Examples	• Casper Klynge: Before becoming Denmark’s first tech ambassador, Klynge served as ambassador to Indonesia, Timor-Leste, Papua New Guinea and Cyprus	• Joe White: Before becoming the UK’s first technology envoy to the US, White was general partner of Entrepreneur First, an early-stage deep tech fund, co-chaired GBx, a curated network of British entrepreneurs, and co-founded Moonfruit.com, an e-commerce platform	• Professor André Xuereb: In addition to being Malta’s ambassador for digital affairs, Professor Xuereb has continued his academic career, with a background in theoretical quantum optics, opto-mechanics and quantum thermodynamics

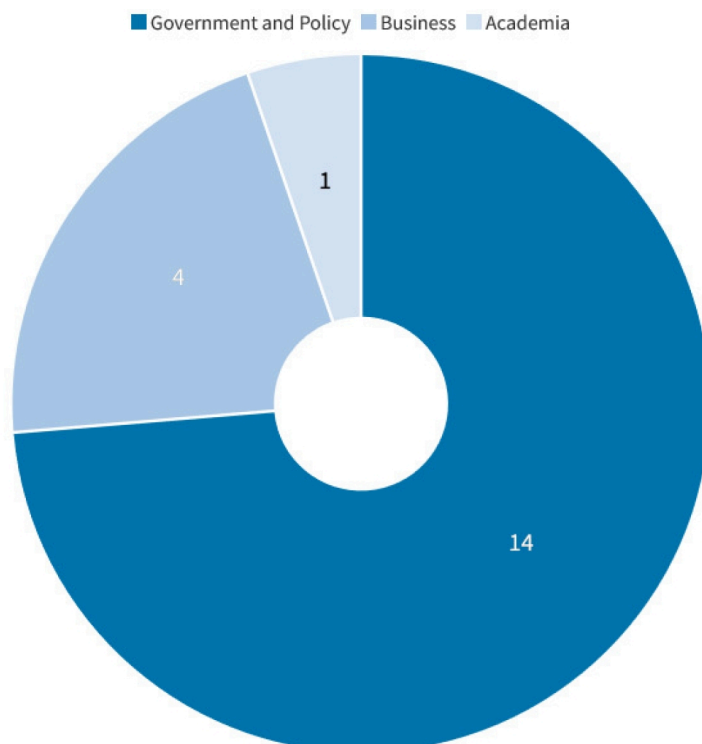
Source: TBI analysis

Governments have to consider a trade-off here: an ambassador from a certain background may be able to navigate their familiar space more effectively but have difficulties engaging in others. For instance, Casper Klynge, the world’s first “tech ambassador”, [recounted](#) that despite appearances, the time he

spent in San Francisco primarily seeking to engage tech companies was challenging in terms of persuading them to do so in a meaningful manner. However, Klynge’s successor Anne Marie Engtoft Larsen indicated that by the time she took up the post, the response from corporate stakeholders in Silicon Valley had become much more positive, and securing meetings with senior tech leaders was easier. This experience reflects the initial difficulties of introducing new diplomatic practices or measures, and the time and effort it takes to “normalise” them.

While ambassadors with a prominent business background may have an easier time with these companies, ambassadors coming into the role from outside government may lack know-how on domestic bureaucracy, putting them at a disadvantage when they must navigate the policymaking system or political scene.

Figure 9 – Breakdown of the 19 countries in our study with dedicated ambassadors, by background



Source: TBI analysis

Our study shows that the ambassadors’ backgrounds largely align with their mandates, with most (13 out of 14) diplomats with a government and policy background focusing primarily on bilateral and multilateral diplomacy or international cybersecurity. Similarly, four of the five ambassadors dedicated to engaging private companies were previously corporate executives. Governments currently seem to appoint ambassadors with the experience to meet their strategic goals.

It is important to note that of the 19 verifiably active tech ambassadors, 14 are male, reflecting the trends observed both in the broader diplomatic environment and in tech. This highlights the importance

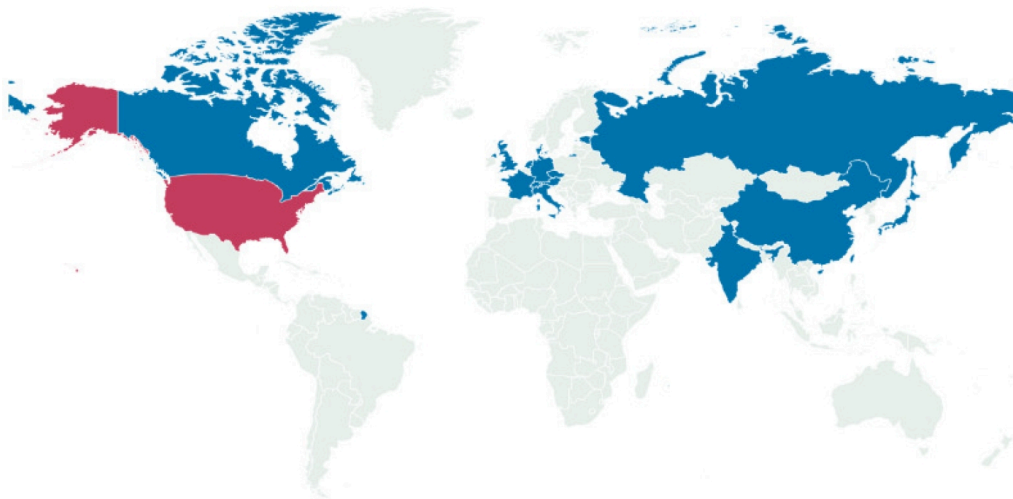
of remaining attentive to the gender imbalance in tech policymaking, and the need to ensure that capacity-building initiatives are in place to redress this disparity.

Measure 2: Dedicated Tech-Diplomacy Office

According to our data set, 17 countries have created entities dedicated to digital foreign policy within their ministries of foreign affairs.³

Figure 10 – Countries that appointed a dedicated office or team within foreign-affairs ministries

Strategy: ■ Yes ■ Planned



Source: TBI analysis

These dedicated offices fulfil a range of essential functions, either in support of a dedicated ambassador or independently contributing to the integration of tech in foreign policy, including:

1. **Drafting, implementing and coordinating technology-related foreign-policy strategy**, or advising government on how to integrate technology into foreign policy. As part of this process, these dedicated tech entities are often directly involved in shaping and informing the technological, digital and cyber-related values and interests of countries. Such leadership is crucial. The US National Security Commission on Artificial Intelligence's recent report found that a lack of clear leadership on emerging technologies at the State Department level hinders strategic technology-policy decisions

and, consequently, the US's ability to compete internationally.

2. **Connecting with the rest of the policymaking ecosystem** to coordinate policy positions within the department and across government. For instance, Australia's whole-of-government International Cyber and Critical Tech Engagement Group, chaired by the Ambassador for Cyber Affairs and Critical Technology, brings together relevant government representatives⁴ with responsibilities for implementing Australia's cyber- and critical-technologies foreign policy every quarter, making sure priorities are aligned. Given the cross-cutting nature of tech-related policy, there will inevitably be overlap in the work of departments. Overlap, however, does not necessitate a merging of offices: just strong coordination for a unified, coherent step forward.
3. **Coordinating international engagement** by representing their country's interests in bilateral and multilateral fora. The offices fulfil a crucial function in providing senior stakeholders with the expertise they need to credibly represent their government's positions on core technology issues.

Creating a dedicated office or team to enable a tech-integrated foreign policy will largely depend on a country's wider tech foreign-policy strategy and approach. Decision-makers will need to consider whether – and how – this entity synchronises with other tech-diplomacy initiatives, its scope and where it sits within the structure of government.

Is a Dedicated Team Needed for Tech Diplomacy?

“There’s no manuals, there’s no best practices... You have to invent everything on the go and have to think it out yourself.”

Martin Rauchbauer, former Austrian tech ambassador and consul in San Francisco

At the outset, governments must decide whether to have either a dedicated ambassador or a dedicated team, or an ambassador with a dedicated team. Which should be established first, and how should their work be synchronised?⁵

Figure 11 – Advantages and disadvantages of dedicated tech-team options

Ambassador with flexibly staffed office or team	Ambassador with permanently staffed office or team
<hr/>	

Advantages

- Nimble staffing model enables greater flexibility by leveraging diverse expertise located across foreign-affairs ministry
- Can shift focus dynamically
- May be less resource-intensive
- Quicker to set up
- Ability to build and maintain lasting expertise; continuity within team
- No potential uncertainty in staffing

Disadvantages

- Lack of continuity in team may lead to loss of expertise, knowledge and know-how (e.g. if ambassador rotates out)
- Difficult to set up if operational area is new (e.g. ambassador dedicated to engaging tech companies)
- Could take longer to set up
- May be more resource-intensive

Examples

- **France's** ambassador is supported by a "digital team" of around 30 agents who work on digital-related issues across the Ministry for Europe and External Affairs, and by three special advisors from the Ministry for Europe and Foreign Affairs, the National Agency for the Security of Information Systems, and the Ministry of Economy and Finance
- **Germany** created a coordination team (International Cyber Policy Coordination Staff) of seven permanent staff members, rather than a specialist department. Given the high number of departments and missions working on the issue, the ministry saw it as
- **Denmark** maintains three permanent offices for its tech ambassador in San Francisco, Beijing and Copenhagen. The two flagship offices, in Silicon Valley and at home, are both headed by a deputy tech ambassador and house a relatively small number of staff (eight and seven respectively), consisting mostly of senior advisors (strategy, tech, cyber). The office in Beijing has only one tech officer

more fitting to create a
coordination team, rather than
replicating existing work

Source: TBI analysis

Our analysis shows that Austria, Denmark and the US all established a dedicated office at the same time as appointing a diplomat or coordinator. For the US specifically, the creation of the new Bureau of Cyberspace and Digital Policy is still in progress and it will be headed by an ambassador-at-large once fully established. Creating a dedicated office and appointing the ambassador simultaneously is advantageous if the office will be functioning predominantly as the support structure of the leading ambassador. However, setting up the office can be a difficult task: both former Austrian tech ambassador Martin Rauchbauer and former Danish tech ambassador Casper Klynge have confirmed that starting from scratch is no easy feat. Countries that already have established tech offices have much to offer when it comes to helping those considering setting them up.

The creation of a dedicated office with a fixed team, however, is not, strictly speaking, a necessity. Other countries, like France and Germany, seem to have benefited greatly from a nimble staffing model that draws on existing capabilities at foreign-affairs ministries (see examples in Figure 11). Such a staffing model can potentially provide greater flexibility and may be more cost-effective, in addition to aligning well with the cross-cutting nature of tech foreign-policy issues that are relevant to the work of multiple departments within and outside the ministry.

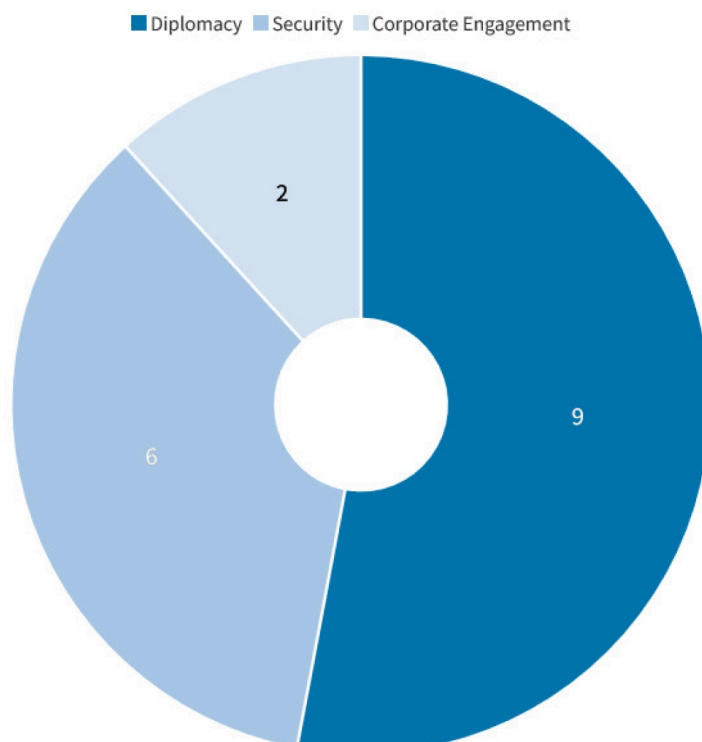
One added benefit, however, of having a dedicated team or office – with or without an ambassador – is the ability to preserve continuity. If a tech ambassador has a flexible team, there is a risk that valuable know-how, gains and relationships will be lost when ambassadors are switched out. Japan's (now former) ambassador for cyber policy Takeshi Akahori, for example, found that frequent changes of ambassador are detrimental to institutional memory.

In comparison, the Ministry of External Affairs in India seems to have established a dedicated tech-foreign policy entity without undertaking other measures such as appointing a dedicated ambassador or drafting a strategy. Notably, the office functions predominantly as an advisory body, supporting senior leadership, coordinating external representation in international fora and liaising with domestic-policy stakeholders.

What Is the Mandate of a Dedicated Tech Team?

Critical to deciding whether to create a dedicated tech team is defining its profile, mandate and scope of work. This decision will depend predominantly on how governments and their foreign-affairs ministries conceptualise tech, digital or cyber foreign policy, and the attached strategic priorities (such as international engagement on cybersecurity or digital governance, and/or boosting economy and trade).

Figure 12 – Breakdown of mandates of dedicated tech offices or teams of 17 countries in our study



Source: TBI analysis

According to our study, the majority of countries seem to use their dedicated entities mostly for formulating and coordinating the implementation of their digital foreign policy, while only a handful are focused on security or the engagement of tech companies.

While for the purposes of this analysis we sought to identify “primary” focus areas, in reality these offices cover broader ground. In fact, given that technological change cuts across political, economic, security, social and human-rights spheres, dedicated offices or teams cannot afford to limit their focus purely to one area if their goal is effective diplomatic engagement on today’s most pressing issues.

“This idea that you're a diplomat that is not geographically located and focused ... is a challenge for foreign ministries. And the antibodies in foreign ministries against things that don't look like they're from these categories are strong.”

Rana Sarkar, Canadian consul general in San Francisco

The final decision governments must make in relation to a dedicated tech team is where it should be located, both within the domestic political system itself (in other words, in which ministry or office) and when establishing permanent offices abroad. The decision will be largely dependent on the existing bureaucratic or ministerial infrastructure, the proposed purpose of the office and on the mandate of any tech ambassador or tech-diplomacy network.

Broadly, governments have three main options:

- Locating the office or team at home, but operating regionally or globally
- Creating an office abroad to focus on deepening relationships with strategically significant countries or stakeholders
- Maintaining a home base but establishing offices in strategic locations

Figure 13 – Advantages and disadvantages of office and team location options

	At home	Abroad	Hybrid
Advantages	<ul style="list-style-type: none">• Quicker and easier access to policymakers and decision-makers at home• Easier coordination in domestic policymaking ecosystem	<ul style="list-style-type: none">• Quicker access to target government or stakeholder group• Easier to build and maintain formal and informal networks• Likely quicker to acquire information	<ul style="list-style-type: none">• Having necessary infrastructure in multiple countries provides convenient mobility• Can enable quicker

			transfer of information or knowledge between teams abroad and at home
Disadvantages	<ul style="list-style-type: none"> • International mobility can be difficult (particularly due to global pandemic) 	<ul style="list-style-type: none"> • More resource-intensive to set up 	<ul style="list-style-type: none"> • Most resource-intensive to set up
Example	<p><u>The New & Emerging Strategic Technologies division at the Indian Ministry of External Affairs</u> was created to:</p> <ul style="list-style-type: none"> • Monitor emerging opportunities and challenges created by technology • Develop India's external foreign policy • Coordinate policy with other government departments 	<p><u>Austria's Open Austria initiative</u>, housed in the Austrian Consulate in San Francisco, focuses on connecting with Silicon Valley in the fields of:</p> <ul style="list-style-type: none"> • Tech diplomacy • Business • Technology • Investment 	<p><u>Denmark's tech ambassador</u> has offices in:</p> <ul style="list-style-type: none"> • Ministry of Foreign Affairs at home • Consulate General in San Francisco • Embassy in Beijing

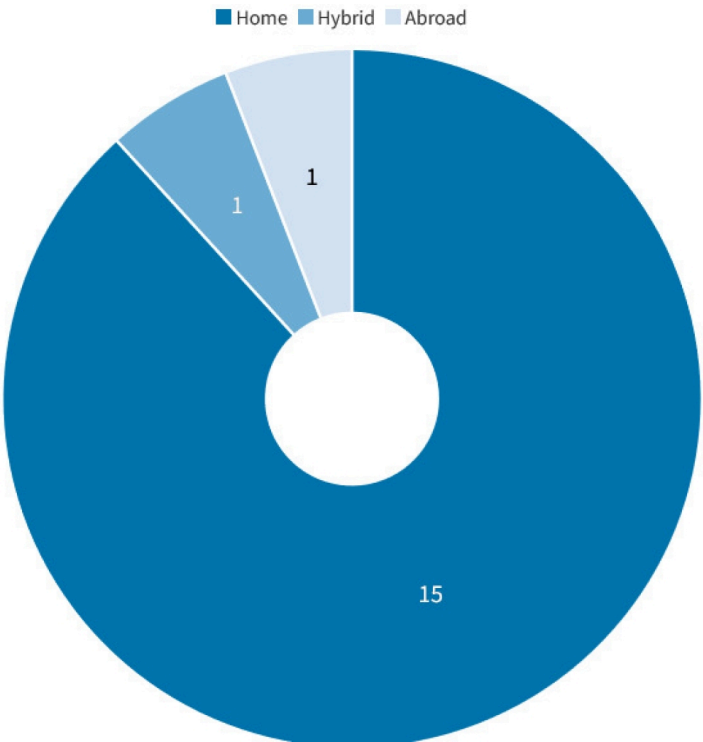
Source: TBI analysis

The location of the office within the domestic political system is key. Given the cross-cutting nature of the challenges presented, sectoral ministries or specialised departments can convincingly argue in favour of handling external representation and engagement on tech within their own domain. This is particularly true if the country in question has a ministry dedicated to digital development or technology. For

instance, in the United Kingdom, the Department for Digital, Culture, Media & Sport (DCMS) takes the lead on technology, while foreign policy is the domain of the Foreign, Commonwealth & Development Office (FCDO). As we have argued in the first section of this report and [elsewhere](#), proliferation of technology-specialised offices or departments within the domestic policymaking ecosystem can contribute to fragmentation – as well as confusion and incoherence in policy, both in its conception at home and in its articulation abroad. In the UK, these split responsibilities could create a situation where the DCMS lacks the appropriate experience in diplomatic practice and international engagement to make the most of its technological knowledge, while the FCDO lacks the specialised expertise to drive the international technology agenda.

This is where effective and meaningful coordination becomes crucial. In the UK, the government has [created](#) the National Science and Technology Council, chaired by the prime minister and supported by the [Office for Science and Technology Strategy](#), to enable better government coordination on technology. How the council or office will interact with the FCDO is yet to be detailed, but given that the council [will be a cabinet committee](#), the foreign secretary’s participation is expected. In other countries, as the previous examples have shown, coordination is the responsibility of either the ambassador, a coordinator or an office housed in the foreign-affairs ministry.

Figure 14 – Location breakdown of dedicated offices or teams of 17 countries in our study



Source: TBI analysis

Our study shows that currently the overwhelming majority of dedicated tech foreign-policy entities are located in the government’s home country. This is a logical choice for a government to make, unless it

wants to dedicate significant and sustained attention to a particular government or market in another geography.

Having a dedicated ambassador does not necessarily change the calculus on location, as long as the ambassador has a global or regional mandate to operate (as an ambassador-at-large) and can move between the office at home and target countries with relative ease. However, if the ambassador's mandate is focused mostly on establishing closer relationships within specific geographies or with important stakeholders, then locating the office in the target geography will become a priority. While this enables more targeted engagement, it can be the more expensive choice.

Of the countries in our study, only Austria and Denmark have established offices abroad for their dedicated entities, with both having outposts in Silicon Valley and Denmark having a dedicated office in Beijing. Notably, both dedicated entities are focusing primarily on corporate engagement.

Measure 3: A Dedicated Tech Foreign-Policy Strategy

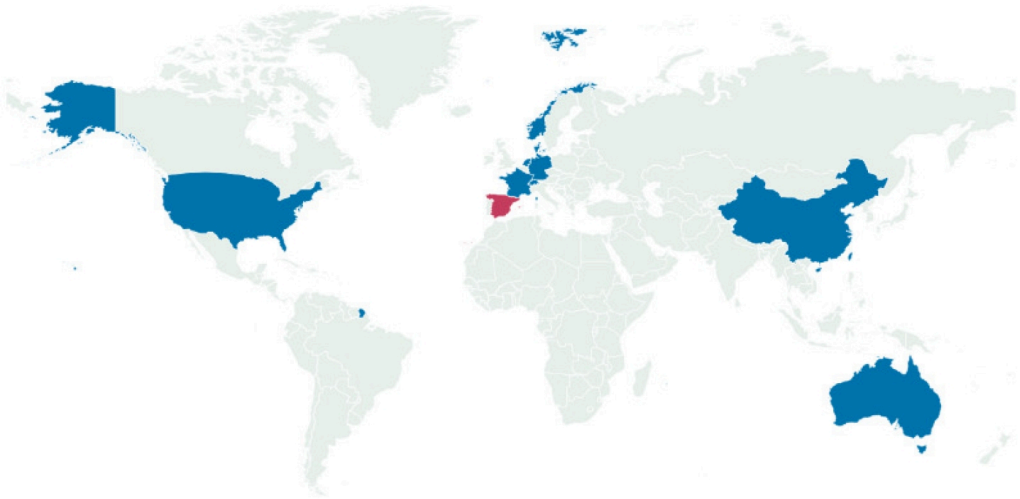
“What we’re seeing now is that now the question of technology comes in almost every single aspect of what we do in foreign policy, regardless of what region – if it’s security policy, if it’s development aid, if it’s the work that we’re doing in multilateral organisations.”

Anne Marie Engtoft Larsen, Danish tech ambassador

The third and final element of successfully integrating tech into foreign policy is the drafting of a tech, cyber or digital foreign-policy strategy.⁶ According to our study, only nine – predominantly European – countries have drafted such a strategy already.⁷

Figure 15 – Countries that have created a dedicated tech foreign-policy strategy

Strategy: ■ Yes ■ Planned



Source: TBI analysis

A Dedicated Tech Foreign-Policy Strategy, or Mainstream Tech-Foreign Policy Considerations into Existing Strategies?

As our study reveals, governments have been slow either to create dedicated tech and foreign-policy strategies or to mainstream technology in their existing foreign-policy strategies. While it is too soon to gauge the impact of new, custom strategies, or old ones with added considerations, each approach has distinct advantages and disadvantages.

Figure 16 – Advantages and disadvantages of strategy options

	Draft dedicated tech strategy	Mainstream tech in existing strategies
Advantages	<ul style="list-style-type: none">• Signals that technology in foreign policy is	<ul style="list-style-type: none">• Easier to emphasise specific

	<p>high priority</p> <ul style="list-style-type: none"> • Clarifies priorities, interests, policy positions and values both domestically and abroad • Useful exercise in coordination between domestic entities • Clarifies division of labour within government • Opportunity to build relationship with civil society, academia etc 	<p>aspects of tech foreign policy prioritised by government (e.g. cybersecurity)</p> <ul style="list-style-type: none"> • Cross-cutting nature of tech makes it suitable for mainstreaming into multiple existing strategies • Less resource-intensive, quicker exercise
Disadvantages	<ul style="list-style-type: none"> • Resource- and time-intensive exercise 	<ul style="list-style-type: none"> • Might be more difficult to keep foreign-policy or tech aspects of strategy high on list of priorities • Can diffuse or confuse ownership unless roles and responsibilities are clearly specified • Appropriate incentives and accountability must be ensured
Examples	<p><u>Australia's International Cyber and Critical Tech Engagement Strategy:</u></p> <ul style="list-style-type: none"> • Strategy published in 2021 • The Cyber Affairs and Critical Technology Branch of the Department of Foreign Affairs and Trade is responsible for drafting and implementing the strategy • Expanded on and superseded 2017 International Cyber Engagement Strategy • Provides framework to guide Australia's 	<p><u>United Kingdom's National Cyber Strategy:</u></p> <ul style="list-style-type: none"> • Strategy published at end of 2021 • Drafted by the Cabinet Office • Outlines UK's approach to promoting its interests in the cyberspace across five pillars • Pillar 4 (Global Leadership), which the foreign secretary is

international engagement for cyber policy
and critical tech issues

responsible for implementing,
outlines foreign-policy
objectives:

1. Strengthen the cybersecurity of international partners and increase collective action
2. Shape global governance and promote a free, open, peaceful, secure cyberspace
3. Leverage and export cyber capabilities and expertise to boost strategic advantage and promote broader foreign policy

Source: TBI analysis

Even though having a dedicated strategy can bring multiple benefits for influencing the domestic and international policy environment, such as building better relationships with stakeholders, clarifying interests, values and priorities, and coordinating across government, drafting a new strategy is not a necessity. Canada and Slovenia have both opted to incorporate foreign-policy considerations into other digital-strategy documents rather than build a dedicated tech foreign-policy strategy. Similarly, the future US cyber ambassador and office is not accompanied by a fully dedicated, brand-new tech foreign-policy strategy. The UK's 2022 National Cyber Strategy builds upon the Integrated Review, allocating ownership of the foreign policy-related aspects of the strategy to the foreign secretary and the FCDO. This option can be quicker and less resource-intensive, and carries the benefit of capitalising on an already existing, well-functioning institution.

Key to the smooth implementation of a dedicated tech foreign-policy strategy is its alignment with existing strategy documents to ensure continuity. Australia's 2021 International Cyber and Critical Tech Engagement Strategy is the product of a thorough and systematic upgrade of the country's 2017 International Cyber Engagement Strategy; the 2017 Dutch strategy, entitled "Building Digital Bridges, International Cyber Strategy: Towards an integrated international cyber policy", builds extensively on – and is complementary to – the country's National Cybersecurity Strategy and the International Security Strategy. Supplementing existing strategies in this way can offer a middle ground between mainstreaming and drafting an entirely new document, signalling the importance attached to tech

foreign policy, and clarifying priorities and interests, without having to draft a fully comprehensive new document that may cover ground already addressed by existing documents.

A Comprehensive or Indicative Strategy?

When either designing a dedicated strategy or mainstreaming tech within a wider strategy, decision-makers must also determine the desired level of detail and maturity a publicly published strategy will present. According to our study, there are three core types of strategy: ⁸

1. **Highly mature** and fully comprehensive: Strategies that are grounded in a detailed overview of the government's vision, values, priorities, goals and proposed measures, clearly allocating ownership across government
2. **Moderately mature** with mostly indicative measures: Strategies that provide a detailed overview of how the government perceives the technological, digital and cyber aspects of foreign policy and their challenges, but lack details on measures to be implemented and accountable entities
3. **Lightweight** based on principles or high-level objectives with minimal details: Usually in the form of a short statement on the significance attached to tech in foreign policy and the state's primary objectives

Figure 17 – Advantages and disadvantages of strategy-maturity options

	Mature	Moderately mature	Lightweight
Advantages	<ul style="list-style-type: none"> Provides clear overview of strategic priorities and principles Helps government entities navigate increasingly complex international arena Drives organisational and individual behaviour Framework for evaluation 	<ul style="list-style-type: none"> Provides high-level outline of visions, values, priorities, goals and measures Leaves room for flexibility for individual action 	<ul style="list-style-type: none"> Maintains strategic ambiguity abroad, while signalling attention to the topic Lack of details gives more policy flexibility for domestic entities Less resource-intensive effort
Disadvantages	<ul style="list-style-type: none"> Resource-intensive 	<ul style="list-style-type: none"> No detailed list of 	<ul style="list-style-type: none"> Can limit

	<p>to prepare</p> <ul style="list-style-type: none"> • Requires greater buy-in and vision from political leadership • Inflexible; may lead to exclusion of initiatives or approaches not part of strategy 	<p>measures makes cooperation or joint action more difficult</p> <ul style="list-style-type: none"> • Lack of clear ownership can create confusion among policymakers • Lack of means for monitoring and evaluation 	<p>opportunities for driving initiatives</p> <ul style="list-style-type: none"> • Likely less effective in driving organisational behaviour
Examples	Australia, Denmark, Switzerland	China, France, Norway, Netherlands, USA	Germany

Source: TBI analysis

Towards a Framework for a Tech-Forward Foreign Policy

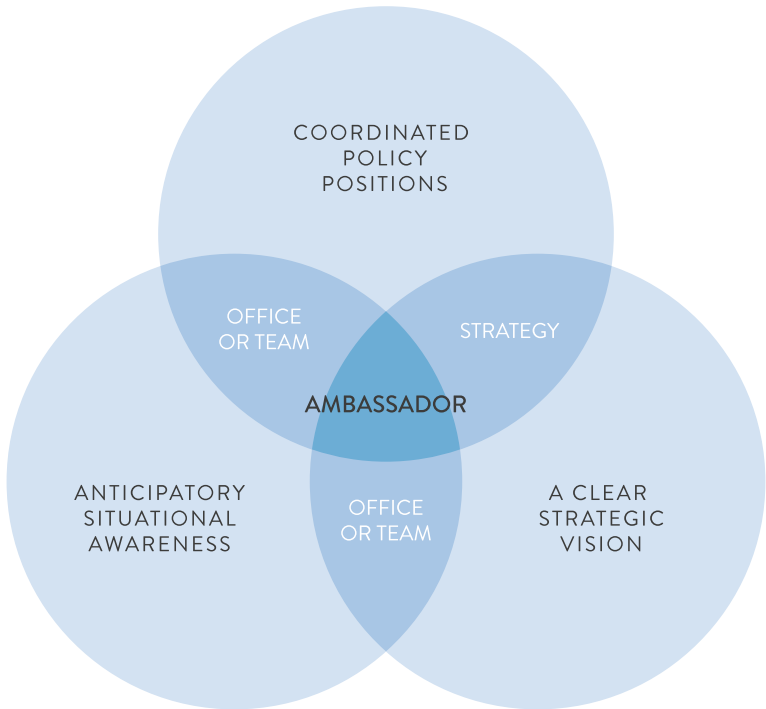
Governments today face an international environment shaped by complex, technology-related challenges that require new approaches to both their domestic and foreign-policy strategies. The development of three key capabilities can help countries meet these challenges:

1. **Anticipatory situational awareness:** To stay ahead of technological change and its impact on international dynamics
2. **Coordinated policy positions:** To reduce complexity effectively at home and abroad
3. **A clear strategic vision:** To drive policy in line with priorities, values and interests

Each of the measures outlined in this report helps governments move closer to acquiring these capabilities. However, the reach and effectiveness of these measures vary significantly depending on the specific configuration a country uses. In order to decide what to prioritise, a government must first identify which capabilities already exist, which ones are lacking and which should be developed first. While there may be many considerations to juggle, there are discernible decision routes policymakers can take when developing their respective measures.

Additionally, it is important to recognise that some countries are likely already implementing non-dedicated but similar measures that build towards these capabilities. While the measures do not have to be “dedicated”, there is value in mapping and elevating existing practices to signal their significance or formalising them for greater efficiency. Governments should consider this carefully when moving forward.

Figure 18 – Prioritisation framework

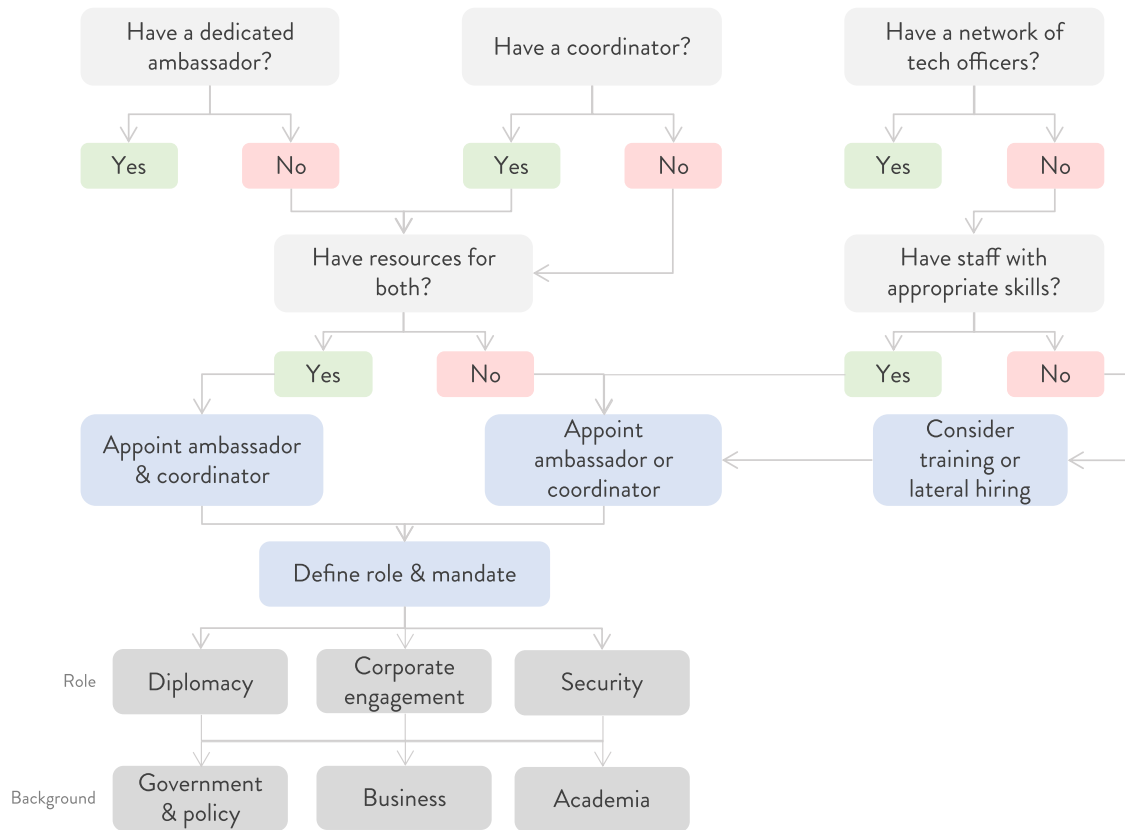


Source: TBI analysis

Dedicated Tech Ambassadors

Our study has shown that tech ambassadors seem to carry the biggest weight in terms of an effective response to the challenges of the new foreign-policy environment. If a government already has a coordinator supporting its work in this area, elevating the coordinator to the level of ambassador, or appointing an ambassador (or special envoy) to provide additional support with a higher profile, could be beneficial. Having both could ensure efficient burden-sharing, especially if there is a network of tech officers at diplomatic outposts to be coordinated. If there is room for only one position, then appointing an ambassador should take priority.

Figure 19 – High-level decision tree for appointing a dedicated tech ambassador

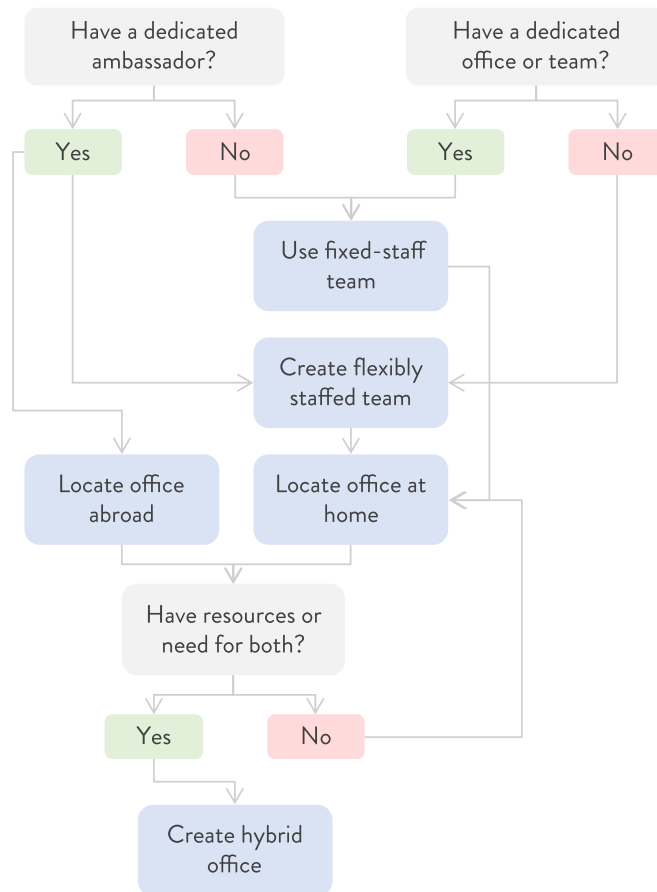


Source: TBI

Dedicated Tech Offices or Teams in Foreign-Affairs Ministries

A dedicated tech office or team creates a platform upon which a government can organise and lay the foundations of its work on technology and foreign policy. Governments must contend with a chicken-and-egg problem when it comes to deciding between creating a full office/team, appointing an ambassador or both. Prioritising one over the other will have to depend on the individual country's circumstances; however, establishing an ambassador and giving them a flexibly staffed team of experts and specialists from across the foreign-affairs ministry (or elsewhere), like in France or in Germany, can represent a good compromise between the two options.

Figure 20 – High-level decision tree for creating a dedicated office or team



Source: TBI

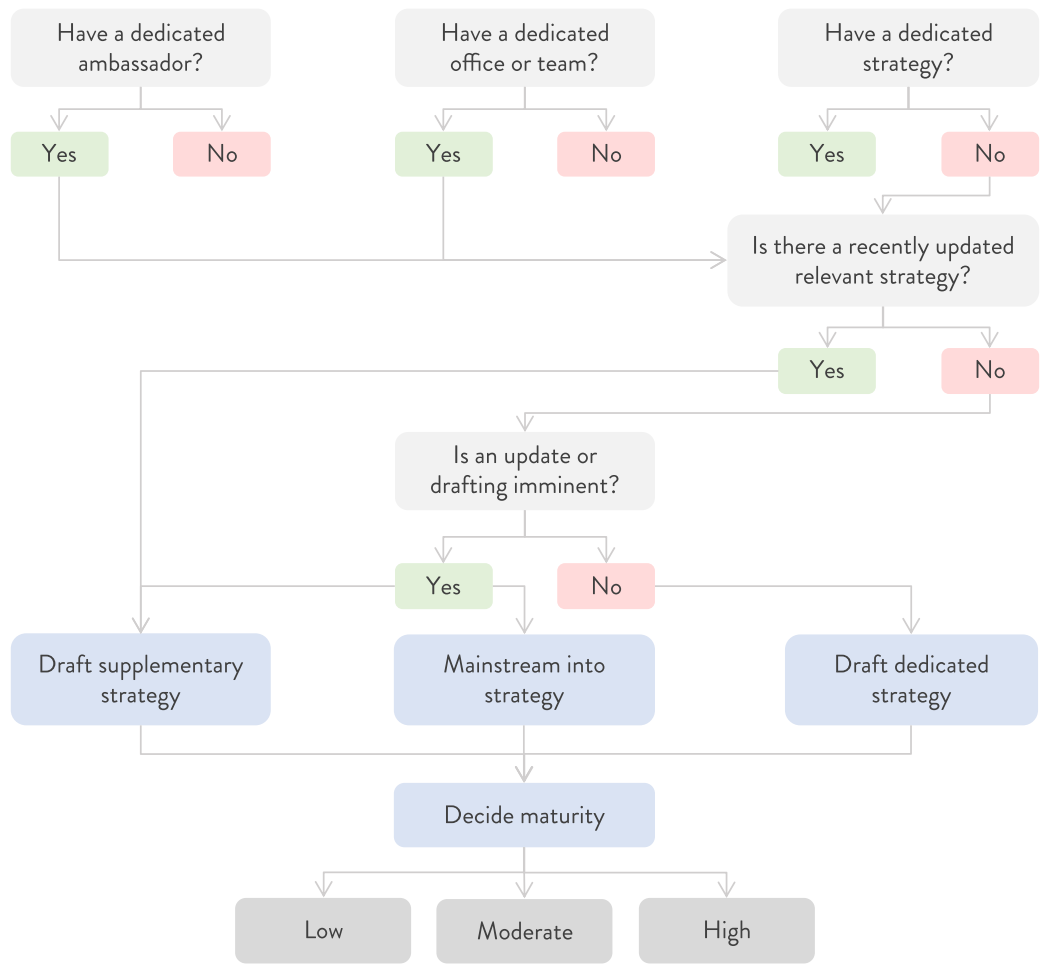
A Dedicated Tech and Foreign-Policy Strategy

A strategy is crucial for clarifying a government’s values and interests in relation to tech and foreign policy. While it is not a precondition, it is likely that having a well-connected ambassador or coordinator, supported by a coordinating office, who follows and channels home intelligence on international trends and stakeholder sentiment will be beneficial when drafting a dedicated strategy. If a coordinating office or team exists, it should lead the drafting effort, but should leverage a multi-stakeholder approach to formulating the strategy.

Governments that have so far integrated foreign-policy considerations into their existing tech-driven strategies (for cybersecurity or digital government, for instance), or that haven’t considered the impact of technology and cyber-related challenges in their foreign policies, may wish to follow this building-

block approach if not yet ready for a fully dedicated tech foreign-policy strategy. States with a recently updated foreign-policy strategy should consider drafting a supplementary tech foreign-policy strategy document, to enable continuity between the two stages while demonstrating the significance the government attaches to technology in foreign policy.

Figure 21 – High-level decision tree for drafting a dedicated strategy



Source: TBI

Key Principles

Irrespective of which capability and measure a government seeks to prioritise, there are a number of general principles that should be central to any framework for a tech-forward foreign policy:

1. **Holistic approach:** Governments should work towards a holistic approach and try not to constrict focus to only one policy area (such as cybersecurity). Focus on government priorities and the country's needs, but recognise the cross-cutting and interdependent nature of the challenges.
2. **Coordination:** Effective coordination is essential for situational awareness, communicating priorities and avoiding the duplication of effort, and for a coherent and unified policy platform.
3. **Entrepreneurial mindset:** While leveraging existing capacities and capabilities is important, states should also be open to experimenting with new models. When introducing new measures, be mindful of the time required for uptake.
4. **Multi-stakeholder approach:** Ensure that strategy and policy are formulated with an awareness of the needs, role and impact of public, private and civic groups.
5. **Articulated vision:** Governments should base their approach on a clear statement of values and principles to ensure coherence and clarity in domestic and international priorities and action.

Maintaining a Tech-Forward Outlook

As demand for the internet and its solutions grows, so too will the impacts of increased speed, proliferation, competition and fragmentation on the geopolitical ecosystem. Technological development will likely continue to outpace policymakers' ability to respond to challenges, and navigating geopolitical dynamics will become increasingly difficult. Alliances and coalitions such as a Digital Infrastructure and Defence Alliance will provide new opportunities for governments to join together and align their approaches across all areas of foreign policy and diplomacy, ensuring that their security, supply and infrastructure needs are met.

As the digital divide closes, another divide is set to widen: between those states that are able to articulate their interests, priorities and preferences in this new order, and those that are not yet prepared for how to do so. Governments in the Global South yet to introduce dedicated measures for a newly tech-oriented geopolitical landscape must examine their course of action. Developing a plan for a tech-forward foreign policy is imperative for international cooperation on tech issues and participation in new tech-oriented alliances and coalitions. Countries that forgo them risk not being able to effectively participate in the debate, and their populations will have to navigate a tech-enabled world that they had limited involvement in shaping. Emerging digital economies carry the responsibility of shaping their diplomatic toolkits accordingly, and countries that already employ these measures carry the responsibility of helping them to do so.

Appendix: Research Design and Methodology

This report sets out the findings of a unique data set surveying the tech-diplomacy initiatives introduced by foreign ministries up until 31 December 2021. Changes after this point are not included.

Data Sources, Collection and Analytic Methodology

All data and analysis for this report was based on publicly available information.

The dedicated ambassadors and strategies introduced by countries were identified and located using Advanced Search Operators on Google and LinkedIn. Search strings were run in English for 244 countries and territories with no restriction on the results' time of publication. Search-results pages were scanned for relevant data, which were then manually collected in an Excel file.

Dedicated offices and teams were identified using country reports provided by the [UNIDIR Cyber Policy Portal](#) and additional desk research.

For each country, only the most recently introduced measures were recorded (that is, the most recently appointed ambassador, new office, latest relevant strategy and so on). Where countries have introduced a particular measure multiple times (for instance, multiple relevant ambassadors within one country), only the most recent and relevant measures were recorded.

Limitations

For the purposes of this report, our data set considers only verifiably active, dedicated ambassadors, entities and strategies introduced by ministries of foreign affairs. We have limited the scope of our analysis to active and dedicated measures to identify which countries attach the highest and most visible priority to technology in their foreign policy. As such, our analysis includes examples of non-dedicated measures (such as cyber-policy coordinator below the rank of ambassador, cyber-policy coordinating office outside ministry of foreign affairs, or foreign-policy strategy with a section on technology), but these are excluded from our data set.

Similarly, our analysis and data sets currently exclude personnel dedicated to science and technology diplomacy, [defined](#) as:

- Science in diplomacy: using scientific know-how and evidence to inform and support foreign policy objectives

- Diplomacy for science: diplomatic efforts and resources are aimed at facilitating international scientific cooperation
- Science for diplomacy: using scientific cooperation as a source of soft power to strengthen or foster foreign relations

Currently, our data set also excludes personnel, offices and teams dedicated to “digital diplomacy” or “e-diplomacy”, defined as the use of online communication (social media, for instance) and other tools to support the building and fostering of diplomatic ties or soft power.

Should you have a question about our methodology, or should you like to contribute to the data set, please feel free to reach out: a.erzse@institute.global.

Download the French language version of this report [here](#).

Footnotes

1. ^ These countries are Australia, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Israel, Japan, Germany, Kazakhstan, Lithuania, Malta, Netherlands, Portugal, Slovenia, Switzerland and the United Kingdom.
 2. ^ While the formal titles of ambassadors or envoys may differentiate between cyber, digital or tech focus areas, for ease of discussion we will use the blanket term “tech diplomats” to cover the entire conceptual spectrum. For the purposes of this report, tech diplomats will be defined as diplomatic personnel affiliated with foreign-affairs ministries or departments, carrying the title of ambassador or special envoy, appointed specifically to lead work on technology-, digital- or cyber-related foreign policies and strategies of states, with or without the support of a formal team or office.
 3. ^ For the purposes of the report, a dedicated entity is defined as an office, department or other team housed within a ministry of foreign affairs (but not necessarily staffed only from there) that owns technology-, digital- or cyber-related foreign-policy strategy and decisions, or is otherwise dedicated to supporting the tech and foreign-policy work of the ministry.
 4. ^ For example, the Attorney General’s Department, Department of Defence, and the Department of Industry, Science, Energy and Resources
 5. ^ Given the challenge of determining what measures have come first in select countries based solely on publicly available data, it is sometimes difficult to determine what countries that sport both an ambassador and entity prioritised.
 6. ^ For the purposes of this analysis, strategies will be defined as government documents that outline the values, interests and policy priorities of states within the domain of technology and foreign policy, and give a description of the proposed means of achieving them.
 7. ^ While our analysis focuses on states with a dedicated, standalone technology foreign-policy strategy, and omits those who chose either to mainstream technology into their existing foreign-policy strategies or to include foreign-policy considerations in their cybersecurity strategies, we have included notable examples in Figure 16 for illustrative purposes.
 8. ^ For a different classification, see <https://www.diplomacy.edu/topics/digital-foreign-policy/>
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