AI - Here for Good

A National Artificial Intelligence Strategy for Ireland

Executive Summary

Introduction

Artificial Intelligence (AI) refers to machine-based systems, with varying levels of autonomy, that can, for a given set of human-defined objectives, make predictions, recommendations or decisions using data. Machine Learning, a subset of AI, is software which is able to learn from applicable datasets to self-improve, without being explicitly programmed by human programmers.

AI is part of a suite of digital technologies which will play a major role in shaping global competitiveness and productivity over the coming decades, granting early adopters significant societal, economic and strategic advantages. AI and other digital technologies are also transforming the world of work; in the words of one commentary "the future of AI is the future of work".

There are many assumptions and misunderstandings about AI and its short- and long-term impacts on the economy and society. Popular narratives, science fiction, and media hype tend to influence our thinking about AI but are often unrealistic and lacking in nuance. However, AI offers great opportunities to improve our socio-economic performance and productivity, as well as our environmental and social wellbeing.

AI is already changing how we learn, work and live: from how we pay for online shopping, to using the apps on our phones. That change will continue to shape our economy and society, as AI's transformative, disruptive technologies are embraced by new sectors and future generations.

Ireland is well-placed to be at the forefront of that change. As a country we have invested heavily in developing IT talent, entrepreneurship and connectivity. We're also home to many of the world's largest ICT businesses.

As that transformation happens, computers will begin to complement or replace specific tasks otherwise performed by people. Now is the time to put safeguards in place to make sure that happens securely, and in a manner that is fair, transparent and builds public trust.

This Strategy sets out how Ireland can be an international leader in using AI to benefit our economy and society, through a people-centred, ethical approach to its development, adoption and use.

Strands

This Strategy sets out how Ireland can be an international leader in using AI to benefit our economy and society, through a people-centred, ethical approach to its development, adoption and use.

In recognition of the wide-ranging effect AI will have on our lives, this Strategy considers AI from a number of perspectives. These are:

Building public trust

Strand 1: **AI and society**

Strand 2: **A governance ecosystem that promotes trustworthy AI**

Leveraging AI for economic and societal benefit

Strand 3: **Driving adoption of AI in Irish enterprise**

Strand 4: **AI serving the public**

Enablers for AI

Strand 5: **A strong AI innovation ecosystem**

Strand 6: **AI education, skills and talent**

Strand 7: **A supportive and secure infrastructure for AI**

Strand 8: **Implementing the Strategy**

A theme that runs through the entire Strategy is Government's commitment to an ethical approach to AI and to the secure use of AI and other digital technologies.

Ultimately the ambition of this Strategy is to make sure that AI is here for good.

In recognition of the wide-ranging effect AI will have on our lives, this Strategy considers AI from a number of perspectives. These are:

1

AI and society

Strand 1: AI and Society

The more people who understand and trust in the potential of AI, the more who will embrace it. The Government recognises the need to have meaningful engagement with the public on the development, governance and use of AI.
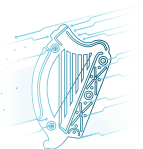
Human rights and ethical principles are a key focus of this Strategy. It is vital that we listen to people's views and embed AI in society in ways that respect and promote diversity, inclusion, equality and non-discrimination.

AI offers transformative potential for tackling many societal, environmental and economic challenges. However, for this to be successful, widespread societal buy-in is required. The Government intends to begin the process of engagement and building trust through the following actions:

Objective
Strong public trust in AI as a force for societal good in Ireland

i. Appoint an AI Ambassador to champion AI as a positive force for the economy and society [DETE]

ii. Open a conversation with children and young people about AI through Comhairle na nÓg, the national structure for consultation with children and young people [DETE / DCEDIY]

iii. Promote and expand courses which educate the general public about AI [DFHERIS]

iv. Expand AI for Societal Good Challenge Funds [DFHERIS, SFI / DPER / relevant Departments]

v. Include opportunities for AI in climate action as part of the development of future climate policies [DECC / DFHERIS, SFI / DETE / DoT]

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2 A Governance Ecosystem that Promotes Trustworthy AI

Strand 2: A Governance Ecosystem that Promotes Trustworthy AI

Ireland is committed to an AI approach which is responsible, ethical and trustworthy. That will require an agile and appropriate governance and regulatory environment across three key areas:

Legal Framework:

Various pieces of legislation already apply to the development and use of AI today, and much of Ireland's existing legal framework should be sufficient to provide for the smooth deployment of AI. However, some legal gaps may require additional regulation and work is ongoing across Government to examine and address legal gaps for AI.

At EU level development of a horizontal European regulatory framework for AI is underway. Ireland is playing an active part in shaping this work, to develop a framework that ensures the protection of fundamental rights, while fostering innovation and benefiting from the opportunities presented by AI.

Ethics:

AI must support the ethical values of society and protect human rights. To achieve this, the EU has developed Ethics Guidelines for Trustworthy AI. An ethical approach will be at the forefront of Government's work to drive AI adoption in the private and public sectors, and we will provide a range of tools to help in assessing the trustworthiness of AI systems.
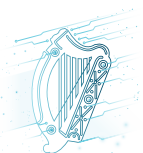
Standards and Certification:

Compliance tools, such as standards and certification, will be used to underpin both legal and ethical obligations with respect to AI. This work will be led by the Top Team on Standards for AI, which was established in 2020 by the National Standards Authority of Ireland (NSAI) to develop a standards and assurance roadmap for AI.

Objective
An agile and appropriate governance and regulatory environment for AI

Strategic Actions

i.   Continue to play an active part in discussions at EU level to define a horizontal regulatory framework for AI [DETE]

ii. Consider an appropriate mechanism for ensuring a coordinated approach by Irish regulators to Digital, including AI, as part of the forthcoming National Digital Strategy [DoT / DETE / DECC D/ Justice / DTCAGSM / DCEDIY]

iii. Examine and promote ways to help businesses self-assess the trustworthiness of their AI systems, including through development of case studies and toolkits for SMEs [DETE-EI, IDA / DFEHRIS]

iv. Publish a Standards and Assurance Roadmap for AI [DETE-NSAI]

v.   Investigate the potential and requirements of regulatory sandboxes for AI [DETE-NSAI / DETE-EI / IDA / DFEHERIS-SFI]

vi. Join the Global Partnership on AI [DETE / DFA]

vii. Continue to advocate within multilateral fora for an ethical and human rights-based approach to AI [DFA / other Departments as appropriate]

viii. Consider the implications of AI as part of a planned review of equality legislation [DCEDIY]

3 Driving Adoption of AI in Irish Enterprise

Strand 3: Driving Adoption of AI in Irish Enterprise

AI is already an important productivity driver in a wide range of sectors, including technology, financial services, agriculture, engineering, healthcare and life sciences.

As we emerge from the pandemic, there is the opportunity to reap a productivity dividend from AI (as well as other digital technologies) in businesses of all sizes and in all sectors. This Strategy aims to encourage and help those enterprises, large and small, to adopt and benefit from AI.

To achieve that aim, Government will partner with Industry to drive widespread adoption of AI across enterprise through a phased approach of awareness building, opportunities to experiment with and pilot

AI applications, assistance with planning and capacity building for AI, and help for implementation of AI

solutions. Government will also encourage strong interaction between research and industry, as well as promoting collaboration and spillovers between SMEs and leading-edge technology MNCs.

An AI Innovation Hub will also be established, as part of Ireland's planned programme of European Digital Innovation Hubs, to act as a National First Stop for AI, providing expertise and guidance to enterprises on their AI adoption journey.
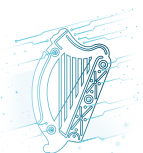
Government will also consider the technology and infrastructure requirements to underpin the widespread and secure adoption of AI by businesses.
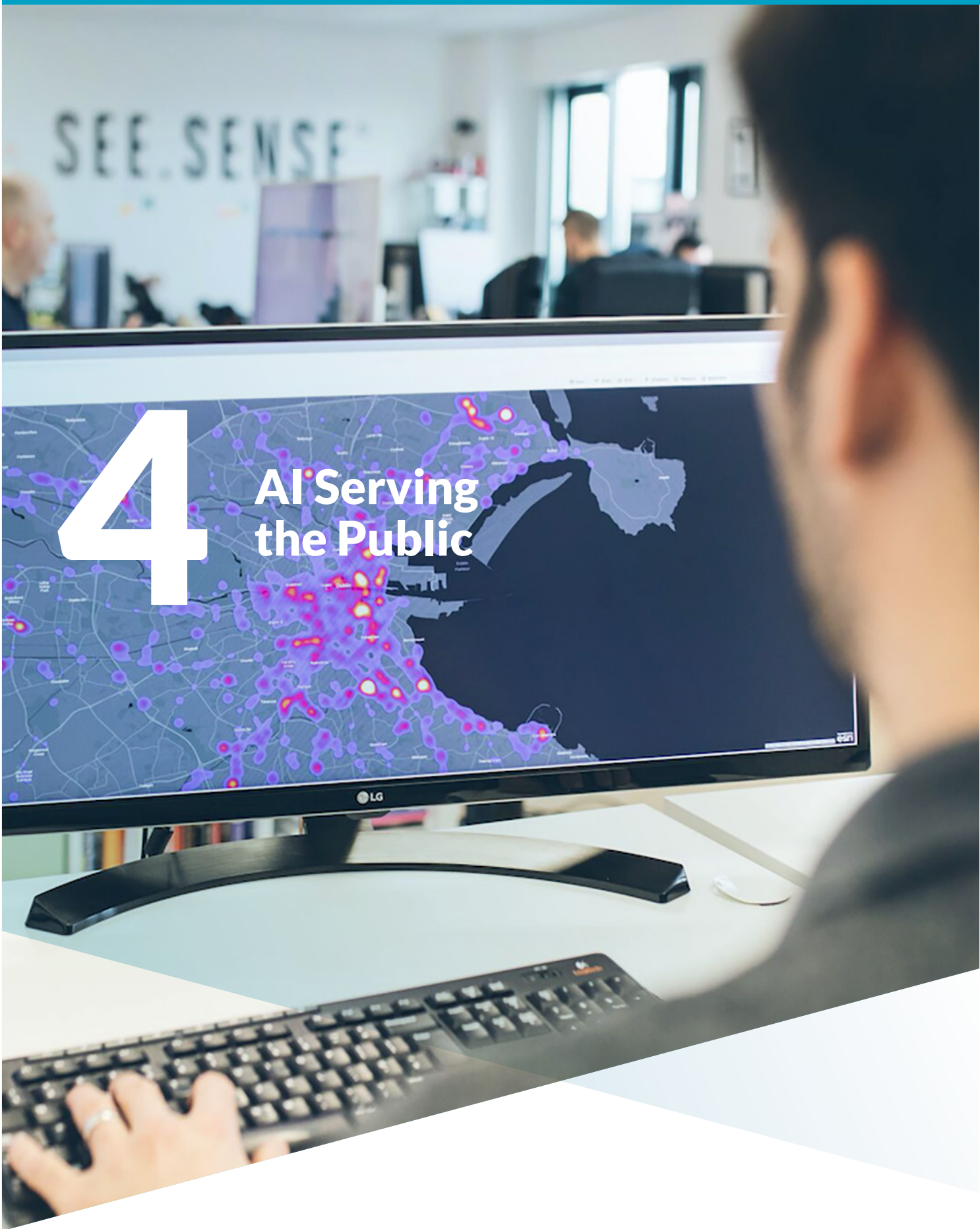
Objective
Increased productivity through a step change in AI adoption by Irish enterprise

Strategic Actions

i. Establish an Enterprise Digital Advisory Board to advise and work with Government to drive industry adoption of AI and other digital technologies including by:

   a. Assessing the current spectrum of AI resources available to industry from Government to inform actions to maximise the potential of the existing infrastructure

   b. Developing an AI programme for enterprise of targeted funding and advisory measures for AI adoption

   c. Raising awareness among businesses of all sizes of the resources available to help with AI adoption

   d. Developing a national AI cluster or platform to drive collaboration between MNCs and SMEs [All actions above for DETE, EI, IDA, LEOs, SFI]

ii. Consider the best model for a data and AI infrastructure platform to accelerate the onboarding and adoption of AI in industry [DETE/IDA/EI/DPER-OGCIO]

iii. Establish an AI Innovation Hub, as part of Ireland's planned programme of European Digital Innovation Hubs, to act as a National First Stop for AI, providing expertise and guidance to enterprises on their AI adoption journey [DETE, EI, Digital Europe]

4 AI Serving the Public

Strand 4: AI Serving the Public

The public sector has already embedded AI into the provision of certain public services, and is also piloting AI applications in a range of areas including agriculture, revenue and health. This has made the delivery of those services more efficient and has provided useful analytic data that can be applied in the formation of future public policies. To achieve the full potential offered by AI requires a coordinated public service-wide, strategic approach to the implementation of AI, that is secure and ethical. The GovTech Delivery Board, which is being established to drive digital transition in the Public Service, will consider AI adoption by the Public Service as part of its work.
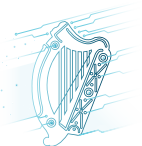
This will be done in a manner that is responsible and ethical. Government will lead the way and drive growth in AI by purchasing and developing ethical and trustworthy AI applications, and by using public procurement policies to stimulate and encourage industry to provide AI based products and services to government. We want Ireland's public service to become a showcase of AI adoption and reference site for industry solutions. By doing so, this will help to build public trust in AI.

Objective
Better public service outcomes through a step change in AI adoption by the Irish public sector

Strategic Actions

i. The GovTech Delivery Board will consider the adoption of AI by the Public Service, including:

   a. What appropriate safeguards are needed to ensure a secure system for AI development and use in the public service

   b. The approach to developing and promulgating principles for trustworthy AI which will apply to all AI developed for and used by the Public Service

   c. The development needs for AI talent in the Public Service

   d. Opportunities for public procurement of AI, using public purchasing power to drive innovation and growth in the development of ethical and trustworthy AI

ii. Promote an 'open' environment for accelerating and testing AI applications in the Public Service, e.g. Hackathons and Workshops [DPER]

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5 A Strong AI Innovation Ecosystem

Strand 5: A Strong AI Innovation Ecosystem

If we want AI to thrive, a strong and supportive ecosystem for AI innovation is essential. Our ambition therefore is to drive AI innovation through world class research and development.

Ireland already has strong industry-academic research credentials built around Science Foundation Ireland (SFI)-run programmes, and many of our academic researchers are internationally renowned for their excellence in AI. As part of this Strategy, we want to build on that reputation, promoting strong links between industry, research and academia, so that innovative researchers, enterprises and entrepreneurs that are involved in developing and using AI are connected to each other and to appropriate support systems.
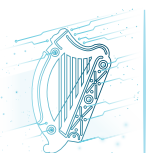
Other important elements of the ecosystem include a supportive funding environment, opportunities to connect with international partners, and access to testbeds where AI applications can be experimented with and piloted in real world environments.

Objective
A strong Irish ecosystem for high-quality and responsible AI research and Innovation

Strategic Actions

i.   Conduct a mapping of the AI R&I ecosystem [DFHERIS-SFI]

ii.   Identify sectors of opportunity for establishing AI testbeds and experimentation facilities [DETE, EI, IDA & NSAI / DFHERIS, SFI, Enterprise AI Advisory Board]

iii. Promote Irish participation in international AI R&I programmes and relevant EU funding calls [DFHERIS, SFI/ DETE]

iv.   Explore potential mechanisms for all-island cooperation on AI R&I in strategic sectors, for example through the Shared Island initiative [DFHERIS, SFI/ DoT]

v.   Promote Ireland as a centre for talent in AI R&I as part of Global Footprint 2025 [DFHERIS/ DETE/ DFA]

6 AI Education, Skills and Talent

Strand 6: AI Education, Skills and Talent

With one in three jobs in Ireland likely to be disrupted by the adoption of digital technologies, our workforce needs to be prepared for the impact of AI. Some of the disruption, however, is likely to be around changes to job roles and tasks, rather than actual job losses. While AI will lead to some displacement, as with other previous disruptive technological advances, it will also lead to the creation of new jobs and higher productivity and incomes. The policy challenge is to ensure that these gains are shared equitably.

The Government will prioritise policies that ensure workers can access opportunities to upskill or re-skill, so as to adapt to these changes. Crucially, other interventions, including in the labour market regulation and social protection spheres, will be needed in order to protect workers' interests and ensure that increasing use of AI does not serve to deepen inequalities.

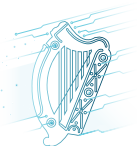Alongside this, Ireland needs to develop, attract and retain AI talent. In this Strategy, Government has set out how our workforce and population will be prepared for driving and adopting AI, through the provision of digital, technical and complementary skills at all education levels, from primary school upwards, and how we will make Ireland an attractive place for international AI talent. In recognition of the importance of cybersecurity, a suite of M.Sc. programmes has been developed to build future skills in this area. We will also take steps towards improving gender balance in AI-related careers, which tend to be well remunerated but male-dominated at present.

Objective
A workforce prepared for and adopting AI

Strategic Actions

i.   Deliver a review in 2021 of the skills implications of AI over the next 5 to 10 years, and the skills-related actions needed to realise the potential of AI [DETE, EGFSN]

ii. Encourage Higher Education Institutions to take a coordinated approach to delivering AI education and training informed by the outcome of the EGFSN review [DFHERIS, HEA and HEIs]

iii. Assist employers to expand workplace-focused AI upskilling and reskilling, including through apprenticeships, SOLAS programmes, Skillnet Ireland training programmes and enterprise partnership schemes [DFHERIS, Skillnet Ireland, HEA, & SOLAS / DETE, Enterprise AI Advisory Board]

iv. Consider how AI can be incorporated into future policy for digital learning [D/Education]

v.   Review the criteria for employment permits for critical AI-related skills, having regard to the research and analysis of AI skills needs that is undertaken [DETE]

vi. Establish an expert group to develop an action plan to increase the participation of women in reslated careers [DETE / DFHERIS / D/Education / DCEDIY]

7 A Supportive and Secure Infrastructure for AI

Strand 7: A Supportive and Secure Infrastructure for AI

The building blocks for a healthy AI infrastructure include access to high-quality and trustworthy data; robust data governance and privacy frameworks; secure high-speed telecommunication networks; and sufficient computing power and storage capabilities.

Many of these components are already core strengths for Ireland, including a strong track record in open data, and a commitment to rigorous data protection standards. Government has put in place legislation to allow public bodies to share personal data, which will be overseen by the Data Governance Board. Broadband rollout and High Performance Computing (HPC) are long-standing Government priorities, on which substantial progress has been made in recent years.

A strong national approach to cyber security is a prerequisite for building and maintaining trust in AI systems. Under Ireland's National Cyber Security Strategy, Government will protect the security of the country's computer networks and associated infrastructure, led by the National Cyber Security Centre (NCSC). As the 2021 ransomware attack on the HSE has demonstrated, there is no room for complacency with respect to cyber security, and the development of the NCSC will evolve continuously, to reflect its important mandate. AI technologies can be used as a tool to strengthen cyber security, for example, through the deployment of active firewalls or smart antivirus protection.
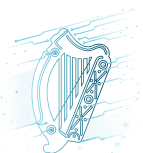
Under this Strategy, Government will build on these strengths to create world-class data, digital and connectivity infrastructure for driving AI development and adoption in Ireland and to solidify our role as a trustworthy data governance hub. Where possible, Government will make more public sector data openly, safely and securely available and will facilitate the development of trusted data sharing mechanisms and research environments to enable access to data and collaboration across different organisations.

Objective
A data, digital and connectivity infrastructure which provides a secure foundation for AI development and use in Ireland

Strategic Actions

i.   Building on initiatives such as the EMPOWER program, provide a framework for trustworthy data governance across the private sector and develop tools and methodologies to apply the framework. [DFHERIS, SFI / DETE, EI, IDA]

ii. Promulgate standards and guidelines for ethical data sharing within the Public Service [DPER / Data Governance Board]

iii. Increase the availability of open government data for AI training and testing, including by holding an AI Open Data Challenge [DPER / CSO]

iv. Identify public sector climate and environmental open datasets to encourage development of AI solutions for climate action [DPER / DECC, EPA, SEAI]

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8 Implementing the Strategy

Strand 8: Implementing the Strategy

The AI Strategy forms an important part of overall digital strategy for Ireland; the drivers and enablers for AI are very similar to those for other digital technologies. Therefore, the AI Strategy will be implemented through the framework that Government is establishing to drive and oversee Ireland's digital transition, with specific strategic actions led by nominated Government Departments, State agencies or other bodies, as set out in the relevant Strands.

An Enterprise Digital Advisory Board will be established to advise and work with Government to drive enterprise adoption of digital technologies, including AI. The Board members will include relevant Government Departments, representatives from MNCs and SMEs, AI experts, IDA Ireland and Enterprise Ireland. The Board will be chaired by the Minister of State for Trade Promotion, Digital and Company Regulation. The Board will oversee the implementation of the enterprise elements of the AI Strategy. Government also plans to establish a GovTech Delivery Board, which will lead the digital transformation of the Public Service. The Board will consider AI adoption by the public service as part of its work.

To reflect the specific complexities of AI, some additional structures will also be put in place, to deliver the objectives of the Strategy.

Driving Public Trust in AI

Building public trust in and engagement with AI will be essential to the overall success of the AI Strategy. Government will appoint an AI Ambassador to promote awareness among the public and businesses of the potential that AI offers, serving as a champion of AI as a positive force for the economy and society, and emphasising an ethical approach. The
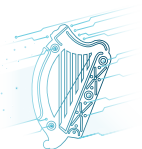
AI Ambassador will be a member of the Enterprise Digital Advisory Board and will be supported in their work by the Board and by the Department of Enterprise, Trade and Employment.
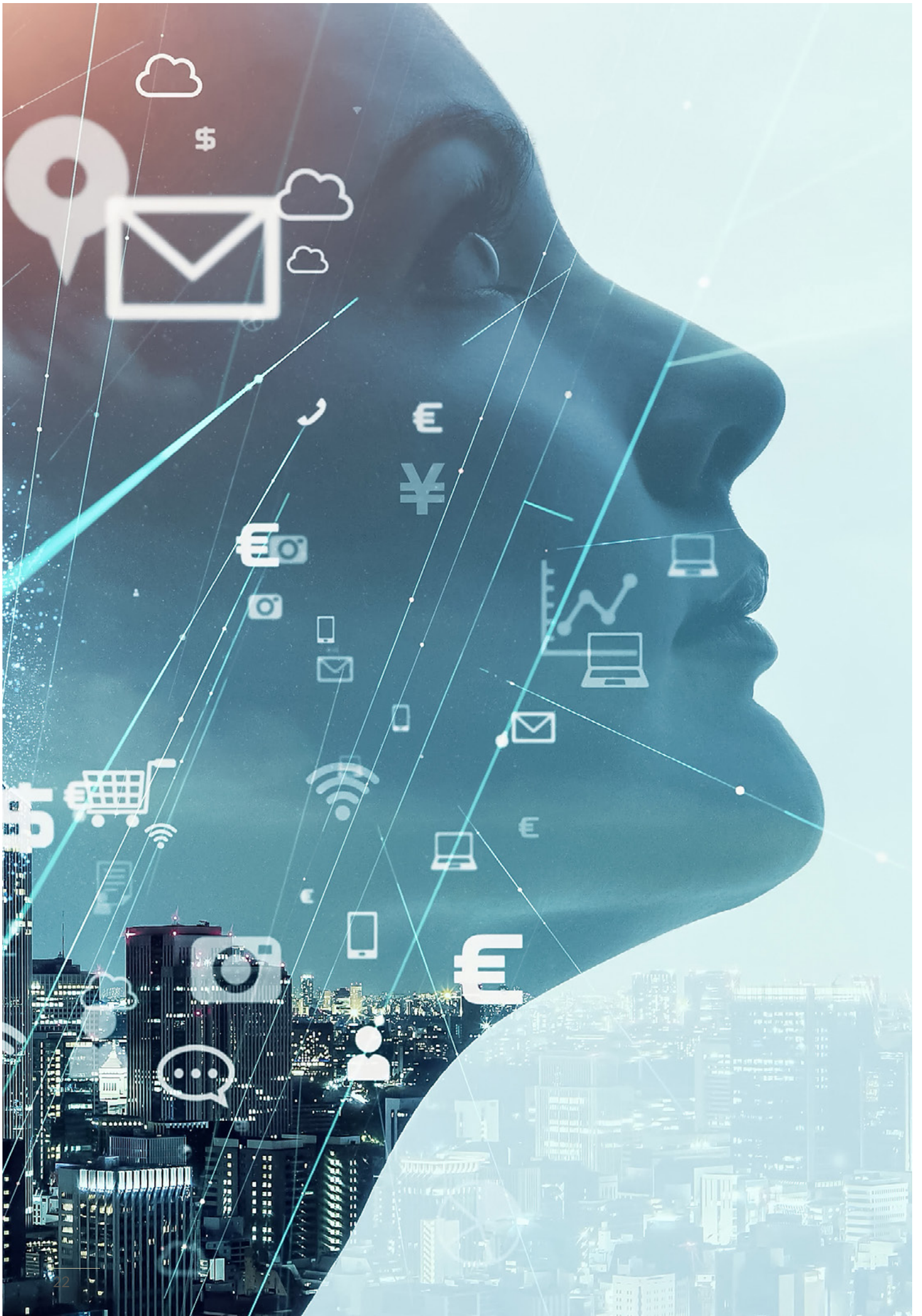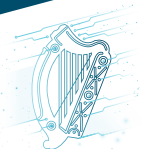
Driving Standards in AI

Government has established a Top Team on Standards for AI to expand Ireland's international leadership in AI standards development. Led by the NSAI, the Top Team is working with academia, industry and regulators to develop a roadmap for AI standards.

Ongoing Review of Strategy

This Strategy will be responsive and flexible, in keeping with the rapidly evolving technologies and the issues it must address. As AI technologies and applications develop, there may be a need for new approaches and initiatives that we cannot foresee today. To allow for this responsiveness, Government will develop a detailed action plan, to drive implementation of the Strategy, and this action plan will be updated each year to address emerging challenges and opportunities.

Rialtas na hÉireann
Government of Ireland