

DIGITAL TRANSFORMATION

at Immigration, Refugees and Citizenship Canada

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Immigration, Refugees and Citizenship Canada / Government of Canada

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Introduction & drivers for change

- » The widening use of technologies like artificial intelligence, automation and online service delivery is changing how countries manage migration
- » In Canada, our evolving use of data and digital technologies continues to alter how we administer our immigration programs and deliver services to clients
- » Several factors led us to explore increased use of data and digital solutions in our immigration programming

More and more people want to visit or immigrate to Canada, resulting in **increased demand** on our programs

The growth of technology has led to **rising client expectations** for fast and personalized service



The Department's traditional means to deal with pressures do not suffice; there is a **need for innovation** to enhance our efficiency

- » The adoption of technology in various parts of Canada's immigration programs is at different stages of development, testing and implementation

Digital transformation pillars

Legal Framework: Changed the *Immigration and Refugee Protection Act*

- » The *Immigration and Refugee Protection Act* now provides broad authorities for the use and governance of electronic systems, including automated systems

Governance: Reorganized our Department

- » New **Transformation & Digital Solutions Sector**
- » Named a **Chief Data Officer**, responsible for managing and protecting data, advancing data governance, and amplifying the value of the department's data holdings
- » Created the **Advanced Analytics Solutions Centre**, a specialized team of data scientists experimenting with machine learning and other techniques to find processing efficiencies, strengthen decision-making and gather business intelligence
- » Built a **Digital Policy team** concerned with technology ethics, legal and policy authorities
- » Established a dedicated team in the Department's **Legal Services** unit focused on the use of technology within IRCC
- » Embarking on an **AI Strategy and Digital Strategy** for the Department

IT Systems: Began work on a new digital platform

- » Took the first steps toward an enterprise-wide platform to deliver new and modernized capabilities for all business lines, as well as our partners in delivering immigration services for Canada

Leveraging digital technologies

Maturation of Express Entry

- » Launched in January 2015 to quickly and efficiently welcome economic immigrants with high human capital using an electronically-based application management system
- » Replaced a paper-based and first-come-first-served model that led to slow processing and large backlogs, and allowed us to select the best candidates from a pool, not just the first in line
- » Leveraging the digital advantage of this electronic system, we're beginning to consider future directions for broader program design, including more dynamic programming

Improvements to the Client Experience

- » IRCC has leveraged new technologies to improve clients' experiences as we continue to explore new and broader service improvements. Two examples of new tools include:
 - » “Quaid”, an AI-powered chatbot to answer client inquiries on social media
 - » “Text from the Mailroom” is a SMS notification service that automatically informs clients once their application is scanned by the mailroom

Digital Journey Labs

- » Currently completing a client-centric digital redesign of up to 14 business lines, including Temporary and Permanent Residents, Citizenship, Passport, and Settlement
- » Objective is to design sustainable program delivery models in an agile, iterative and cross-functional environment that will serve as levers for transformation

Spotlight: AI and automated decision support

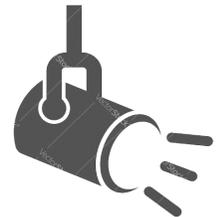
At Immigration, Refugees and Citizenship Canada (IRCC), “AI” usually means putting our historical data to use by uncovering patterns and then creating purpose-specific systems to identify appropriate responses to common inputs. Straightforward visa applications and common client enquiries are good examples.

How did we get started?

- » Scoped the risks and benefits of AI, analytics and automation, resulting in an internal white paper on digital transformation (2018)
- » Aligned ourselves with new government-wide oversight regime
- » Sought outside perspectives and expertise--success with AI and automation requires that we look beyond our organization.

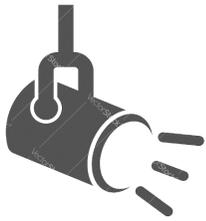
How is IRCC using AI?

- » For a chatbot that answers client enquiries on social media
- » For the possible creation of a litigation management tool
- » **In support of visitor visa processing in China and India**



What is IRCC not doing?

- » Automating decisions in business lines like Asylum, Humanitarian & Compassionate cases, Pre-Removal Risk Assessment
- » Using “black box” algorithms that make determinations in unknowable or unexplainable ways
- » Planning to displace the central role of officers in immigration decision-making



Pilot project

Goal: Use advanced analytics and machine learning to **automate a portion of the Temporary Resident Visa (TRV) business process**, focusing on online applications from China and India

- » Train a model to recognize **key factors at play in decision-making**
- » Human in the loop: review and approve **business rules** suggested by the model
- » Automatically **triage** incoming applications into categories based on complexity
- » Isolate the **most straightforward applications** and **auto-approve** them, allowing officers to focus time and energy on cases that require more scrutiny



System can auto-approve for **eligibility** only



Visa officers review for **admissibility**



No automated refusals

Success depends on **good quality data**



So far, IRCC has seen results with Temporary Resident Visas, but less so with study permits or citizenship grants

We are continuing to explore other potential uses of advanced analytics, such as risk-flagging and anti-fraud tools

Governance will be key



Now looking at how to link new policy guidance to our business intake, project management and decision-making regimes, in order to ensure that risks are properly mitigated and benefits fully realized

Public engagement is important for building trust and learning from others



» Before IRCC began to share its work, public narrative was shaped by misconceptions

Significant appetite for IRCC to share our approach with other government departments, academics, legal community, etc.

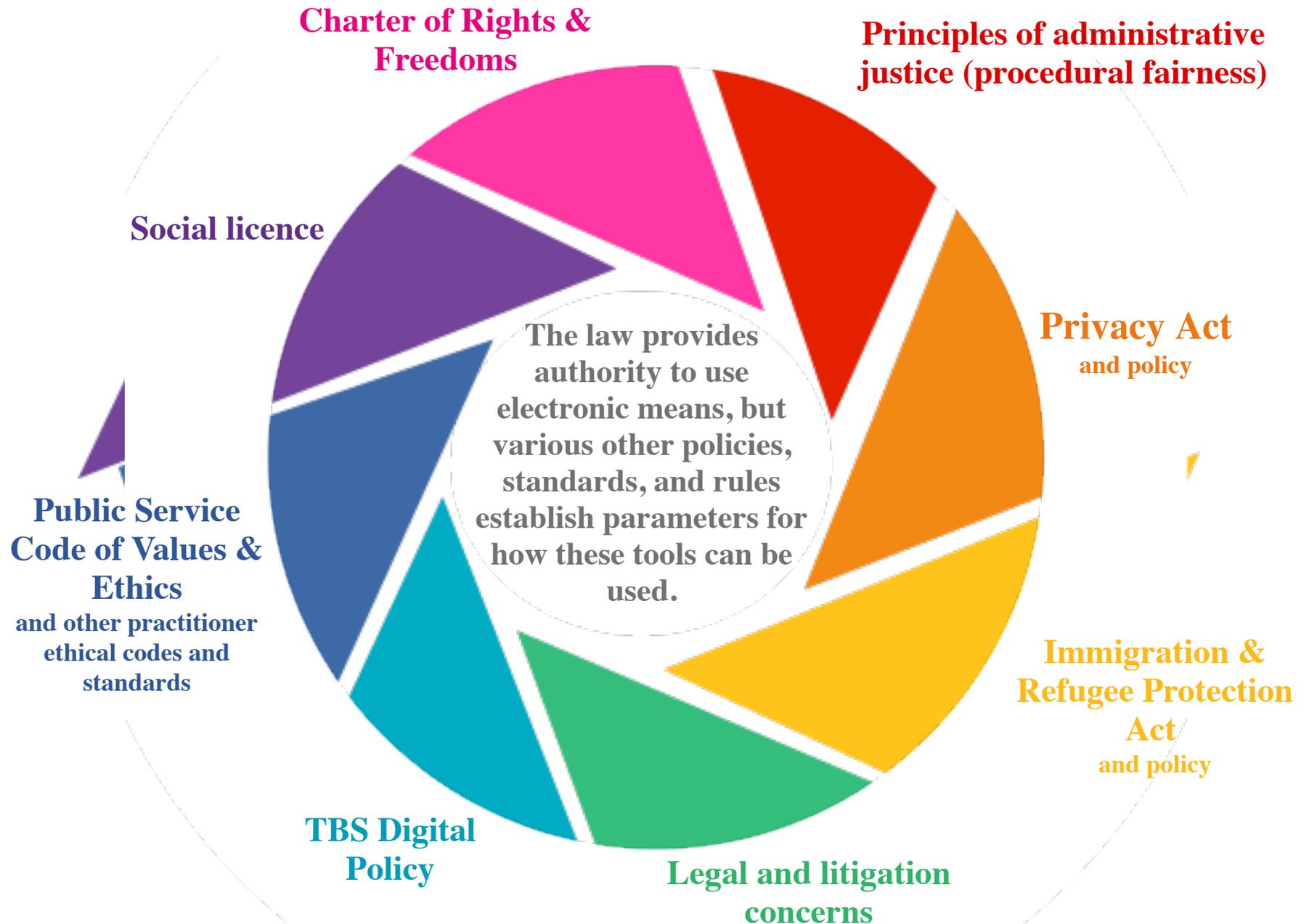
» Even more beneficial for us, given scattered pockets of diverse expertise

Digital transformation, and automation in particular, present unique considerations ...

We need to make sure we're connecting the right people, asking the right questions, and taking the right steps



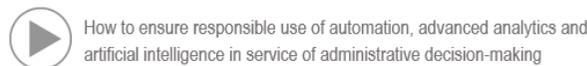
An existing ecosystem of policy constraints



We're developing our own internal guidance

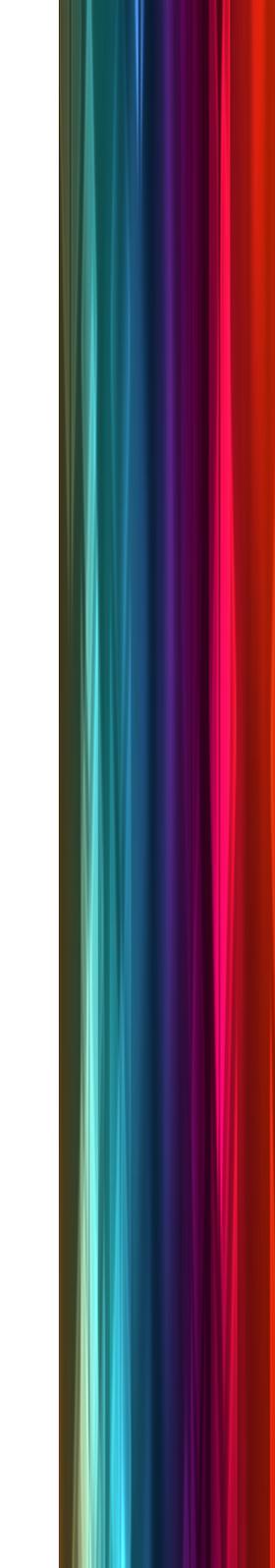
Drawing on extensive research, the expertise of a multi-disciplinary team and experience from the visa analytics pilot, IRCC introduced **internal guidance** on the use of AI to support decision-making.

A POLICY PLAYBOOK



1	Preamble
2	Guiding Principles
3	The Automator's Handbook
4	Glossary of Key Terms

1. **Guiding principles** that provide advice on topics such as:
 - » **Responsible design**
 - » **Data management**
 - » **Privacy protection**
 - » **The role of human decision-makers**
 - » **Transparency and explainability**
 - » **Procedural fairness**
 - » **Accountability**
2. **Automator's handbook** that guides staff through the process of developing an automated decision system, equipping them to ask the

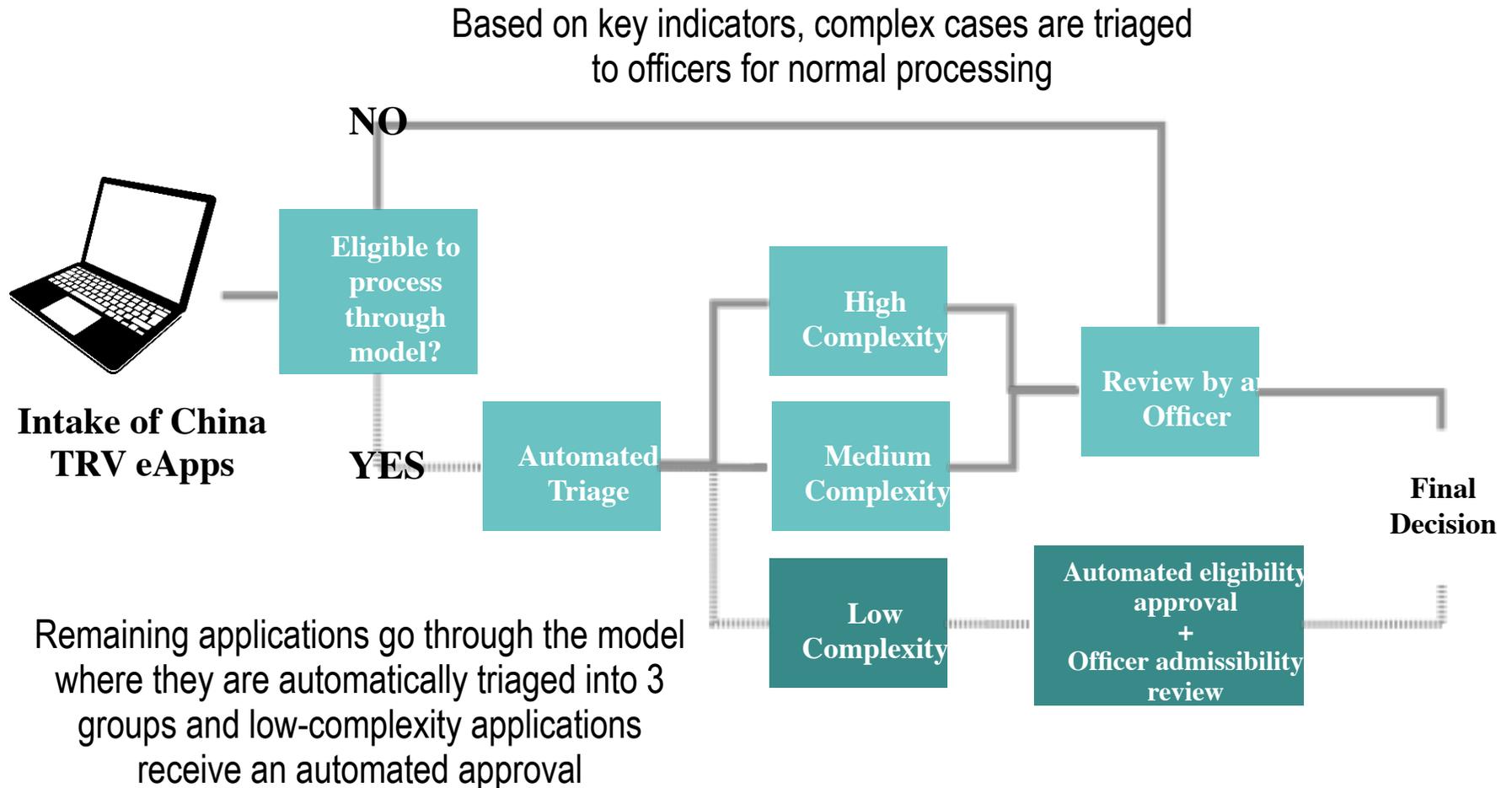


THANK
YOU

Questions or comments?

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ANNEX A: China Pilot: Process Flow



➤ The pilot included an extremely rigorous **quality assurance** process, which demonstrated that the model's outputs were remarkably consistent with human decision-making (99.5%).

ANNEX B: Guiding Principles

Guiding principles will give IRCC a coherent basis for strategic choices about whether and how to make use of new tools and techniques.



1.

The use of new tools should deliver a clear public benefit. IRCC should use automated decision support wherever it can do so responsibly, effectively and efficiently – in that order.



2.

Administrative decisions are about people, and they are made by people, even when we use AI. Humans, not computer systems, are accountable for decisions.

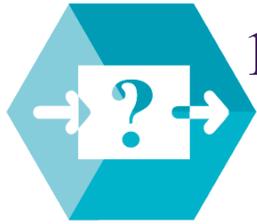


3.

Because IRCC's decisions have significant impacts on the lives of clients and Canadians, the Department should prioritize approaches that carry the least risk.

POLICY
PLAYBOOK
ON
AUTOMATED
DECISION
SUPPORT

ANNEX B: Guiding Principles



1.

“Black box” algorithms can be useful, but cannot be the sole determinant of final decisions on client applications.

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2.

IRCC must recognize the limitations of data-driven technologies and take all reasonable steps to minimize unintended bias.



3.

Officers should be informed, not led to conclusions.

ANNEX B: Guiding Principles



1. Humans and algorithmic systems play complementary roles. IRCC should continually strive to optimize these roles and find the right balance, in order to get the best out of each.

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2. On top of respecting Canada's current privacy protection framework, IRCC should continually adopt emerging privacy-related best practices in a rapidly evolving field.



3. IRCC should subject all systems to ongoing oversight, to ensure they are technically sound, consistent with legal and policy authorities, fair and functioning as intended.

ANNEX B: Guiding Principles



IRCC must always be able to provide a meaningful explanation of decisions made on client applications.

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IRCC must balance transparency with the need to protect the safety and security of Canadians.



Clients will continue to have access to the same recourse mechanisms, and IRCC's use of automated systems should not diminish a person's ability to pursue these avenues.

ANNEX C: The Automator's Handbook

A handbook is being developed to help guide innovators through a linear process when considering the development of a new automated decision system, equipping them to consider the right questions at the right times.

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When deciding if automated decision-making is well suited to the problem at hand

What impact would our proposal have on clients?
Do we have the data we need to make this work?

1

When setting out to design and build a new system

How will we guard against algorithmic bias?
How will the system ensure procedural fairness?

2

Once an automated system is up and running

What is the process for ongoing quality assurance?
How often do we re-evaluate the model?

4

When preparing for system launch

What is our approach to public transparency?
Have employees received the training they need?

3

ANNEX D: Some fundamental orientations

- A **how-to guide** approach, as opposed to a compliance regime that carries a heavier resource burden

Although efficiency is a driver for innovation, our approach is concerned, first and foremost, with **effective decision-making**

No “no-go” zones or outright bans on automated refusals, “black box” algorithms or the use of certain tools in certain program lines. Instead, the playbook advises caution and helps to consider a use case and how defensible it would be.