

# Advanced Analytics Models: Updates, Overview of Outcomes and Prioritization List

December 2023

Operations Planning and Performance Branch  
Advanced Analytics Solutions Centre (A<sup>2</sup>SC)

Not DPU approved for public release



## Notes

OPP's Advanced Analytics Solutions Centre operates two types of models:

- 1. Advanced Analytics Models:** models that include rules created by advanced analytics (AA) algorithms, usually used in combination with rules created by officers.
- 2. Business Rules Models:** models that only use rules created by officers. AA algorithms are not involved.

Both types of models go through the same extensive review process for potential discriminatory impacts. Model rules are described in plain English and vetted by subject matter experts to determine that they are free of bias and reflect the legislative and regulatory requirements for the program, as well as officer best practices. The models also undergo a legal review and privacy impact analysis. They are subsequently approved by senior executives. When necessary, the models are also subject to additional due diligence activities, including peer review and GBA Plus, in order to identify and mitigate risks related to bias. The new [governance framework](#) describes how these steps are undertaken.

Both types of models are useful for generating efficiencies.

In the past, both types of models were collectively referred to as "AA models". However, going forward, we will be more precise in distinguishing the two.

This document is not a cost-benefit analysis of advanced analytics. The findings of time and motion studies are very briefly mentioned, alongside other qualitative indicators. Additional time and motion studies will be undertaken in the future, in cooperation with Finance, as part of a more rigorous assessment of benefits.


s.16(1)(b)

s.21(1)(a)

s.21(1)(b)

**Overview of Models in Development as of February 5, 2024**

 On Track
  Delayed
  At Risk but Recoverable
  Unrecoverable Issues

Priority	Previous Ranking	Project	Lead Branch	Description	Status	Next Steps	Estimated Launch Date
1	1						
2	4						
3	5						
4	-	<b>WP – International Experience Canada</b>	CN	Enhancements to the model to reduce or eliminate manual checks	On Hold	<ul style="list-style-type: none"> <li>On hold because CN has given priority to other model changes for the 2024 peak season. Thus, A2SC resources are currently re-directed to implementing these changes and model monitoring.</li> </ul>	On Hold
5	-		GN, CN		 <ul style="list-style-type: none"> <li>Parse</li> <li>Develop a</li> </ul>		
6	11	<b>Operation Syrian Refugees Memory Project (AA model)</b>	DMO, IPG	Classify documents and make their content more usable and searchable	On Hold	<ul style="list-style-type: none"> <li>Resources have been redirected to other priority projects.</li> <li>Security constraints around these documents and the need for specialized skills reduces the number of A2SC staff who may work on this project.</li> </ul>	On Hold
7	2	<b>SP Eligibility Model (SDS and SP) (AA model)</b>	GN, CN	Enhance triage model and add automated positive eligibility determinations	On Hold	<ul style="list-style-type: none"> <li>On hold pending a decision from senior management on whether to proceed with automated eligibility approvals through Tier 1 and/or bulk processing.</li> </ul>	On Hold
8	7	<b>CEBEC / Email Triage for CEB (AA model)</b>	CEB	Implement additional automation and special measures	On Hold	<ul style="list-style-type: none"> <li>On hold until EDW provides A2SC with daily updated data to enable the automated upload of incoming correspondence into GCMS.</li> </ul>	On Hold
9	-	<b>Citizenship Triage Model</b>	CPPG	Triage applications to support more efficient processing	On Hold	<ul style="list-style-type: none"> <li>CPPB is currently reviewing their manual triage criteria, which is a prerequisite step to any AA.</li> <li>A2SC does not have any available staff to work on this project unless another project is halted</li> </ul>	On Hold

## Overview of Models in Development as of February 5, 2024

On Track Delayed At Risk but Recoverable Unrecoverable Issues

Priority	Previous Ranking	Project	Lead Branch	Description	Status	Next Steps	Estimated Launch Date
10	8	Canada Experience Class Triage Model	CN	Triage applications to support more efficient processing	On Hold	<ul style="list-style-type: none"> <li>On hold due to data access issues and lack of A2SC resources to begin this work.</li> </ul>	On Hold
11	9	ITAT for Provincial Nominees Express Entry	IRM	Produce ITAT risk indicators	On Hold	<ul style="list-style-type: none"> <li>Awaiting a decision at the DG level on whether to prioritize this work.</li> <li>May need to wait until ITAT's expansion is complete in the TR line of business (eTA expansion is being proposed for 2024-25).</li> </ul>	On Hold
-	-	Temporary Resident Visas – In-Canada	CN	Enhance triage model by adding automated positive eligibility determinations	On Hold	<ul style="list-style-type: none"> <li>CN does not see much return on investment for this project given the rapid, streamlined processing already being applied. Processing times are already noticeably lower than overseas TRV.</li> <li>A2SC does not have any available staff to work on this project.</li> </ul>	On Hold
-	-	WP - Global Skills Strategy	CN	Enhance triage model by adding automated positive eligibility determinations	On Hold	<ul style="list-style-type: none"> <li>A2SC does not have any available staff to work on this project.</li> </ul>	On Hold
-	-	Private Sponsorship of Refugees	GN	Extend the existing sponsor eligibility model to all remaining types of sponsors	On Hold	<ul style="list-style-type: none"> <li>On hold due to data access issues and lack of A2SC resources to begin this work. A ticket was opened with EDW.</li> </ul>	On Hold

## Overview of Models in Production, as of February 5, 2024

Model	Type of Model	Goal	Launch Date	Users	Benefits
Family Class – Spousal-Inland	Eligibility Determination	Identify low-complexity files for positive eligibility determination by the model; support efficiencies in remaining files through triage and annotations	April 2021	CN	<ul style="list-style-type: none"> <li>47% of files receive an eligibility approval by the model.</li> <li>Average eligibility assessment time per file has dropped by 47% due to the model.</li> </ul>
Family Class – Spousal-Overseas	Triage only	Automated triage for improved workload sharing and prioritization	June 2021	GN	<ul style="list-style-type: none"> <li>13% of files triaged as "Tier 1" (simple).</li> <li>Improves worksharing and caseload management across GN.</li> </ul>
TRV – Overseas	Eligibility Determination	Identify low-complexity files for positive eligibility determination by the model; support efficiencies in remaining files through triage and annotations	January 2022	CN & GN	<ul style="list-style-type: none"> <li>Since early December 2022, 26% of new intake of non-CUAET files have been selected for positive eligibility determinations through the model and through bulk processing.</li> </ul>
TRV – In-Canada	Triage only	Automated triage for improved workload sharing and prioritization	July 2021	CN	<ul style="list-style-type: none"> <li>Helped CN increase officer quotas for simple files from 100 to 250 files per day.</li> </ul>
Seasonal Agricultural Workers Program	Triage only	Identify very low-complexity returning workers from Mexico for faster eligibility review.	March 2021	GN	<ul style="list-style-type: none"> <li>Average assessment time per file was reduced by 25%.</li> </ul>
TR to PR	Triage only	Automated triage for improved workload sharing and prioritization	July 2021	DN	<ul style="list-style-type: none"> <li>Helps manage the priority and progress of files more efficiently and reduce the number of times that officers interact with a file.</li> </ul>
Email Triage for GN Offices	Triage only	Automated triage to enable faster response to client inquiries	Various since 2021	GN	<ul style="list-style-type: none"> <li>Enables faster responses to clients in 51 offices.</li> <li>The tool has enabled resource and time savings of about 14 FTEs that can be reallocated to other work.</li> </ul>
Study Permits	Triage only	Automated triage for improved workload sharing and prioritization	June/July 2022	CN & GN	<ul style="list-style-type: none"> <li>Up to June 2023, 20% of files were triaged as "low-complexity" for streamlined processing.</li> <li>Since then, the triage focuses on improving workload sharing between networks and better distribution of files between officers based on expertise.</li> </ul>
Email Triage for the Client Support Centre	Triage only	Automated triage to enable faster response to client inquiries	July 2022	CSC	<ul style="list-style-type: none"> <li>Enables bulk replies to general information requests to rapidly reduce the email inventory.</li> </ul>
Private Sponsorship of Refugees (two models)	Eligibility determination for sponsor; triage only for refugee	Identify low-complexity sponsors for positive eligibility determination by the model; triage refugees to improve processing efficiency	December 2022	GN	<ul style="list-style-type: none"> <li>22% of sponsors qualify for automated eligibility approval</li> <li>30% of principal applicants benefit from streamlined processing</li> </ul>

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Integrity Trend Analysis Tool	Triage only	Improved identification of risk patterns to support verification activities in TR programs	Various in 2023	CN & GN	<ul style="list-style-type: none"> <li>Increased rate of fraud detection compared to existing tools</li> </ul>
Work Permits - Global Skills Strategy	Triage Only	Triage applications to support more efficient processing	February 2023	CN	<ul style="list-style-type: none"> <li>30% of intake triaged as "low-complexity" and can be finalized faster</li> <li>Better distribution of files between officers based on their expertise</li> <li>Facilitate inventory management</li> </ul>
Work Permit Extensions	Eligibility Determination	Identify low-complexity files for positive eligibility determination by the model; support efficiencies in remaining files through triage and annotations	September 2023	CN	<ul style="list-style-type: none"> <li>Starting in September 2023, the models include automated positive eligibility determinations for almost 51% of Post-Graduate WP and 32% of other WP-extensions</li> </ul>
Visitor Records	Eligibility Determination	Identify low-complexity files for positive eligibility determination by the model; support efficiencies in remaining files through triage and annotations	October 2022	CN	<ul style="list-style-type: none"> <li>15% of files have received an eligibility approval by the model</li> <li>Starting in October 2023, the volume of automated eligibility determinations for routine cases (Tier 1) was expanded to over 30%</li> </ul>
WP – International Experience Canada	Eligibility Determination	Triage applications and automate positive eligibility determinations based on business rules	November 2023	CN	<ul style="list-style-type: none"> <li>Manual triage is no longer required</li> <li>Low-complexity applications can be finalized faster</li> <li>Facilitate better inventory management and workload distribution</li> </ul>