



CRI

Centre for Regulatory Innovation

Regulators' Capacity Fund

Artificial Intelligence Safety Cases

QUICK GLANCE

Lead Organization:

Canadian Nuclear Safety
Commission (CNSC)

Timeline:

Nov 2021 – Mar 2022

Funding:

\$225,000

ABOUT THE RCF

The CRI's Regulators' Capacity Fund empowers federal regulators to better consider economic, competitiveness, and resilience factors in regulatory design and implementation.

PROJECT OVERVIEW

The project aimed to explore the potential of artificial intelligence (AI) in enhancing safety assessments within the nuclear sector. The project focused on developing AI-based models to improve regulatory decisions, ensure compliance, and enhance the overall safety framework.

The Challenge:

Regulating nuclear safety involves complex assessments that require significant time and expertise. Traditional methods may not always efficiently predict and mitigate risks, leading to potential safety gaps.

The Approach:

CNSC partnered with AI experts to develop machine learning models capable of analyzing vast datasets and predicting safety outcomes with high accuracy. The project included training CNSC staff on AI tools, integrating AI models into existing regulatory frameworks, and conducting pilot tests to evaluate the effectiveness of these models.

The Impact:

The AI models demonstrated a significant improvement in the accuracy and speed of safety assessments, reducing the time required for regulatory reviews. This innovation not only enhanced the safety of nuclear operations but also showcased the potential of AI in regulatory practices.

Lessons Learned:

Innovation: Integrating AI can significantly improve regulatory efficiency and accuracy.

Training: Continuous learning and adaptation are essential for leveraging new technologies.

Collaboration: Partnering with AI experts was crucial for the project's success.

This project demonstrates the transformative potential of AI in regulatory practices, highlighting its ability to enhance safety and efficiency in complex assessments.