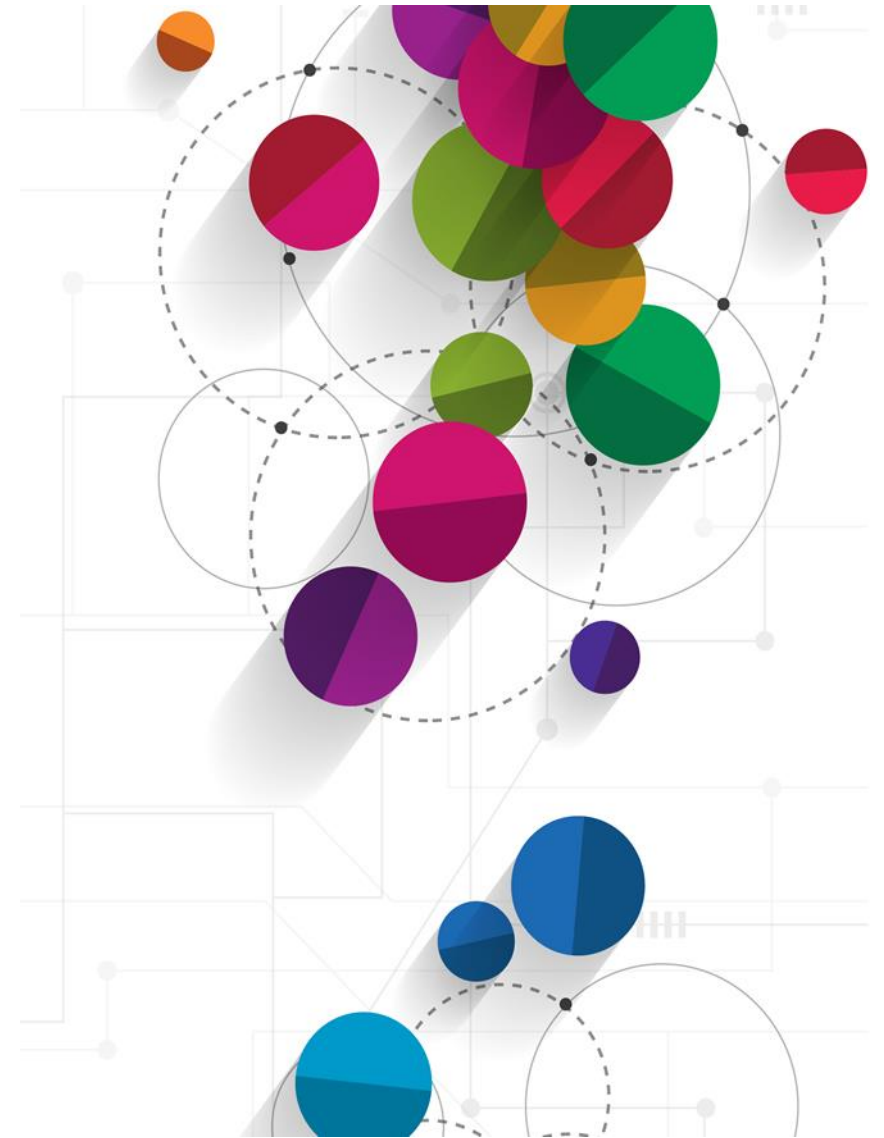# The AI Pilot Project

**Developing Experimental AI Solutions In
The Cloud to Drive Predictive Analytics at DFO**

The Office of the Chief Data Officer

The Fish Site

Find species, diseases, articles…

A practical guide to using AI in aquaculture

· TECHNOLOGY & EQUIPMENT

by Jonah van Beijnen and Gregg Yan
27 January 2020, at 9:33am

Artificial intelligence (AI) is already making huge improvements to the efficiency and sustainability of

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The new bottom line   Guardian sustainable business

The latest weapon in the fight against illegal fishing? Artificial intelligence

A $150,000 reward is up for grabs for any data scientist who can write code for facial recognition software that can pinpoint

National DEFENSE

MARITIME SECURITY

Navy, Coast Guard Onboarding Artificial Intelligence Tech

10/16/2020

By Connie Lee

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3,290 views | Sep 17, 2019, 04:05pm EDT

Can AI Save Our Oceans? Let's Start With The Data.

Sandra Ponce de Leon Former Contributor
COGNITIVE WORLD Contributor Group ⓘ

AI

The New York Times

A.I. Is Helping Scientists Understand an Ocean's Worth of Data

Machine-learning applications are proving to be especially useful to the scientific community studying the planet's largest bodies of water.
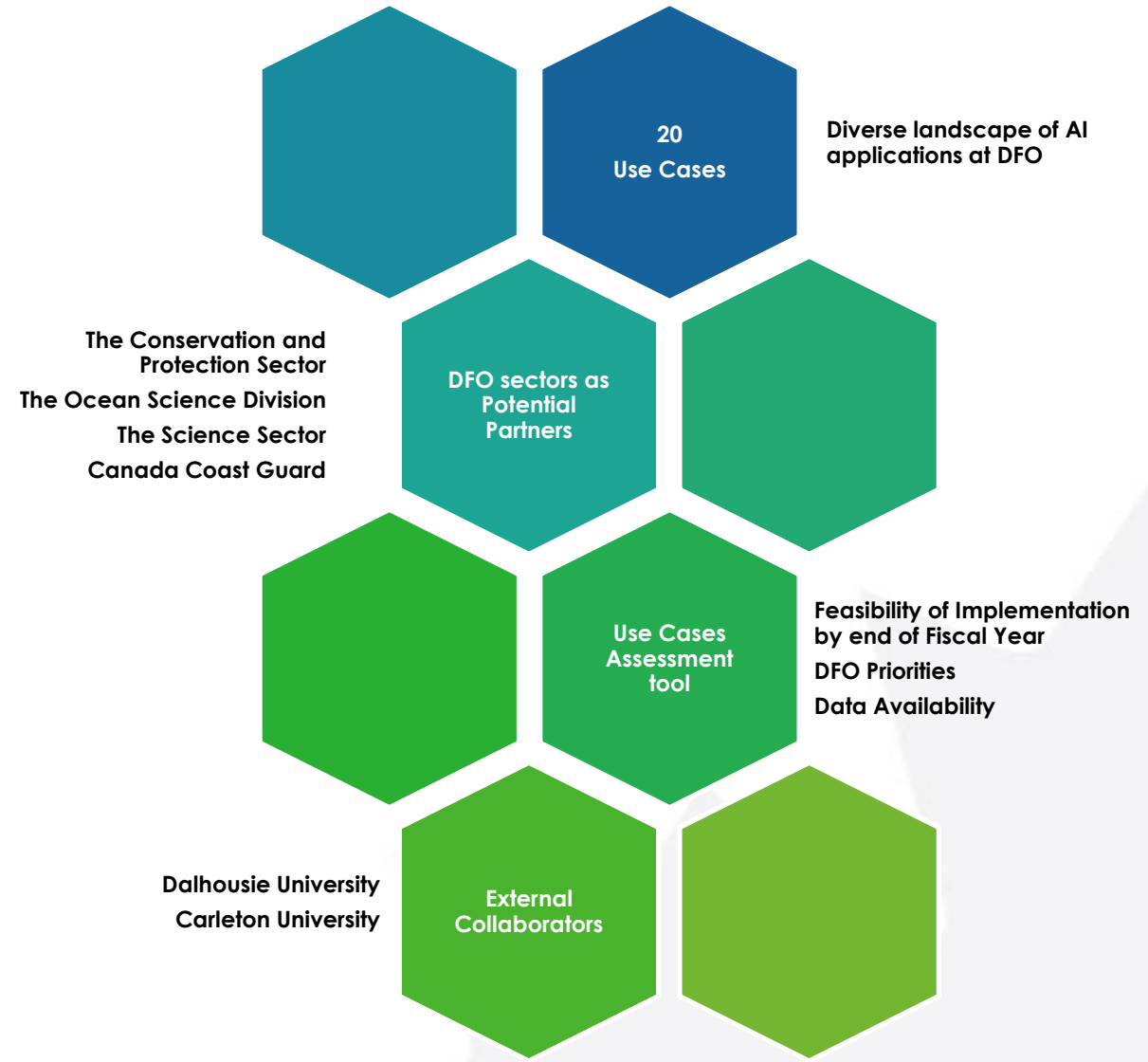
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How Satellites And Machine Learning Are Being Used To Detect Plastic In The Ocean

Liz Allen Contributor ⓘ
Science

Liz writes about the ocean and its protection.
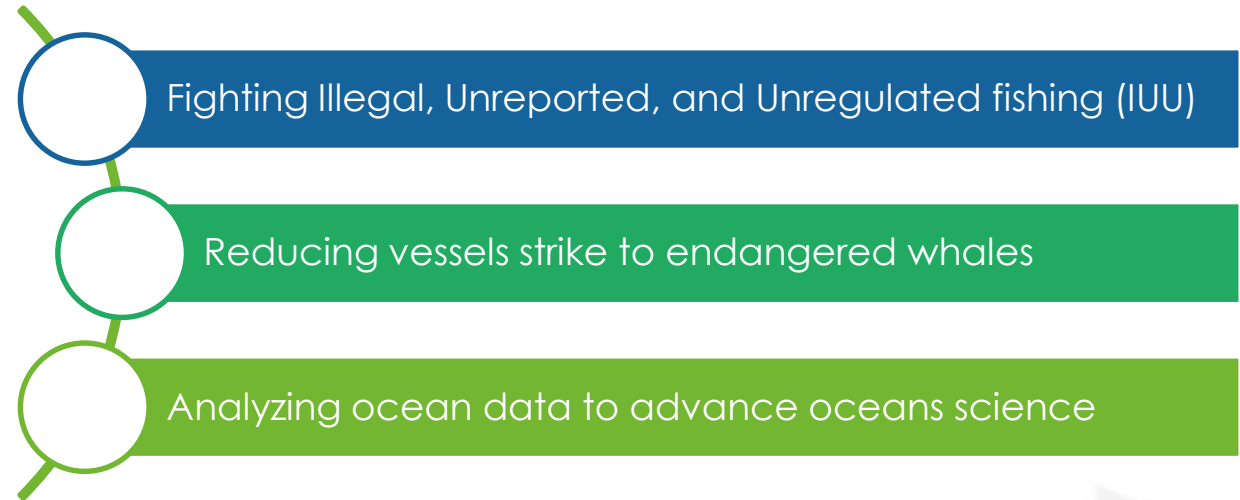
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Overview and objective

- Co-sponsored by **strategic policy/OCDO** and **HRCS/IMTS,** and in partnership with programs and business areas

- How DFO can use AI, coupled with other technologies to **gain insights**, **automate tasks**, or **optimize outcomes**

- **Partners and collaborators**

  - Partners:
    - The conservation and protection directorate
    - The science sector
    - The ocean science division

  - Collaborators:
    - Dalhousie university
    - Carleton university

20 Use Cases

Diverse landscape of AI applications at DFO

The Conservation and Protection Sector
The Ocean Science Division
The Science Sector
Canada Coast Guard

DFO sectors as Potential Partners

Use Cases Assessment tool

Feasibility of Implementation by end of Fiscal Year
DFO Priorities
Data Availability

Dalhousie University
Carleton University

External Collaborators

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3

AI use cases at DFO

- **A repository of potential AI use cases has been identified**

- **Three use cases were selected for experimentation based on DFO priorities**

Fighting Illegal, Unreported, and Unregulated fishing (IUU)

Reducing vessels strike to endangered whales

Analyzing ocean data to advance oceans science

Three Proof Of Concepts (POCs)

- *Detecting vessel behaviors using AI and satellite data*
- *Identifying North Atlantic whale calls from acoustic data*
- *Clustering and detecting anomalies in ocean data*

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Implementation approach
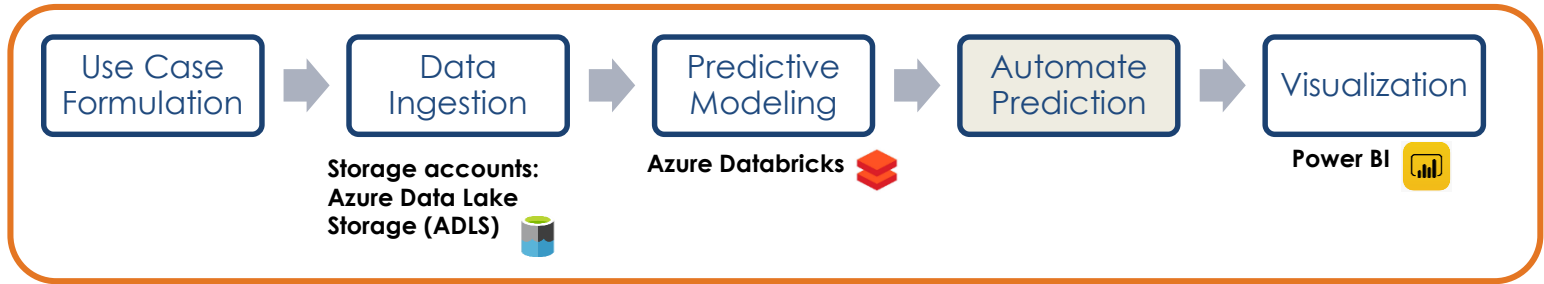
End to end Machine Learning Pipeline and Technology Stack for the AI Pilot

- Methodology:
  The CRoss-Industry Standard Process for Data Mining
  (CRISP-DM)

- AI platform:
  Microsoft Azure

- Off-the-shelf AI solutions:
  Microsoft Azure cognitive services
  Elastic machine learning anomaly detection
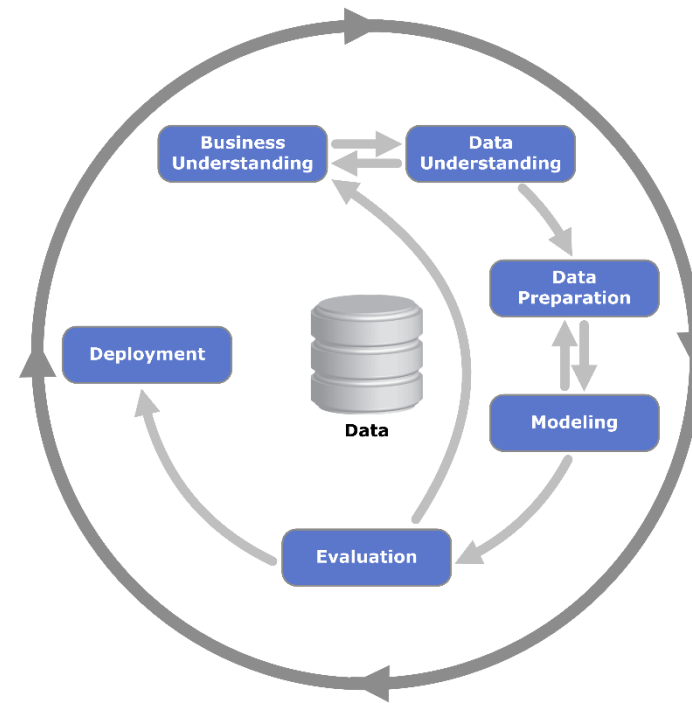
CRISP-DM
https://en.wikipedia.org/wiki/Cross-industry_standard_process_for_data_mining

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