Statistics Canada's AI Adoption Roadmap

December 2024

Statistics Canada Statistique Canada

Canada

Agenda

- Opportunity at our doorstep?
- Statistics Canada’s Roadmap to AI adoption
- Pillars of the roadmap
- Lessons learned so far

Opportunity at Our Doorstep?

- **New Revolutionary Technology:** Generative AI - creates new content like text, images, and code
  - **Large Language Models (LLM)**: Generate human-like text
- **The need**: Maintain our legacy, relevance, and competitive advantage in the data-driven digital age
  - Optimize operations to allow employees to dedicate time to more value-added tasks
  - Leverage technology to better serve Canadians
- **Opportunity:** Advancing how Statistics Canada delivers services to Canadians through the systemic adoption of Generative AI (G-AI) methods and technologies
  - Does not acting represent a lost opportunity which could result in Canadians using low quality 'official statistics' and reputational risks for StatCan?
- **Alignment with our Strategic Plan objectives**
  - Build the next generation of statistical programs (enhance service delivery for Canadians)
  - Build an enabling infrastructure
  - Shape a healthy, diverse and skilled workforce

Statistics Canada AI Posture

Data Science

- Use of AI not new in the production of official statistics (e.g. NLP for coding, image processing, classification of comments)
- Experimenting with LLMs (Census reference materials, report generation, StatCan web site)
- Built significant expertise in data science and application of AI methods

Technology

- Piloting use cases using LLMs (e.g., search on StatCan web-site; Census reference materials search)
- Building foundational infrastructure to enable AI adoption
- Trying new Gen-AI technologies such as M365 Copilot

Partnerships

Part of various working groups and initiatives:

- Advisory council on AI
- AI and Data Governance standardization (co-chair)
- Member of working group on the AI strategy for Government of Canada
- International collaboration – HLG-MOS; bi-lateral partnerships with NSOs

Beyond Research: Fully Integrating AI

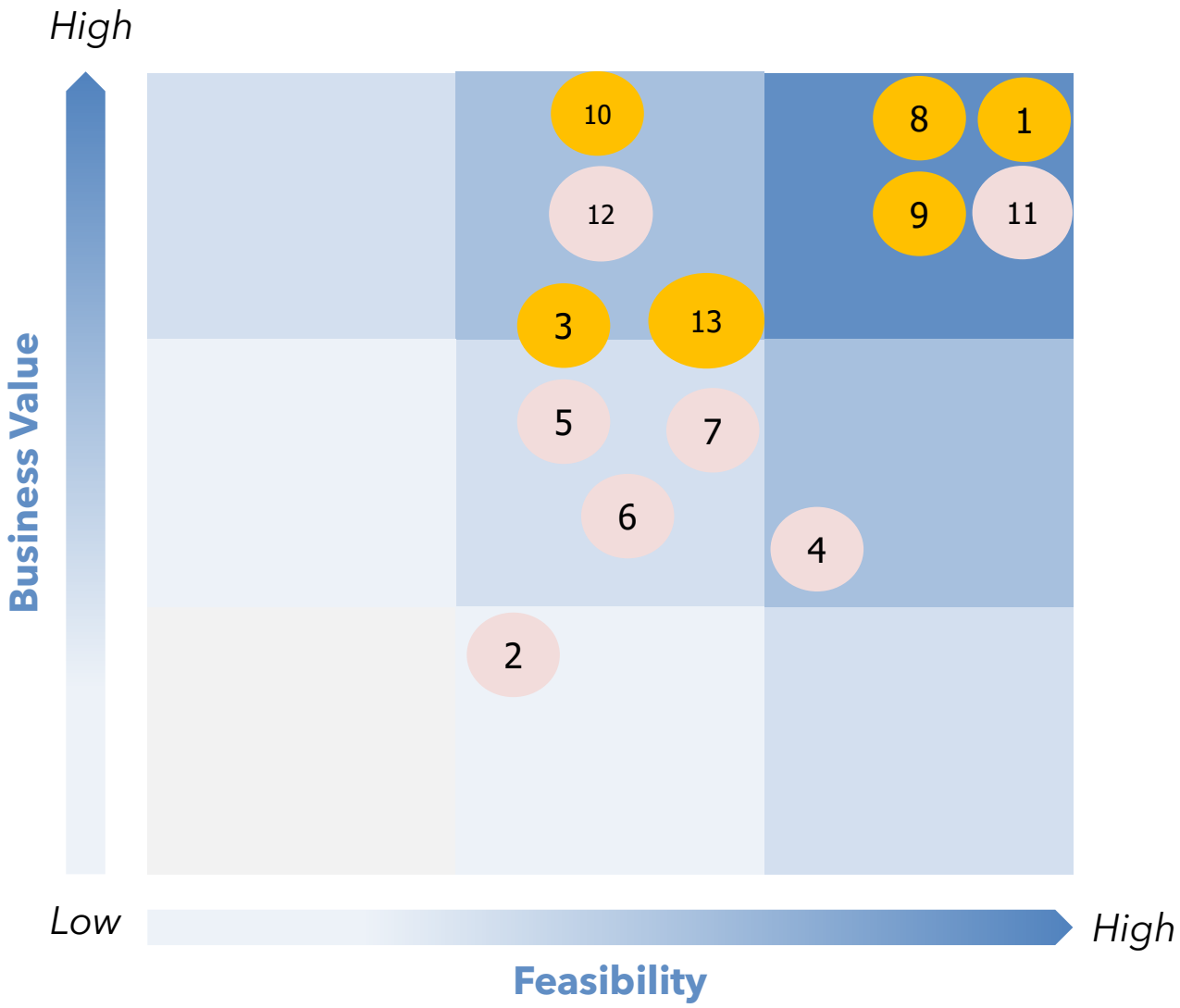
Vision

Full responsible and secure integration of AI, including LLMs, in Statistics Canada's processes to deliver relevant programs, efficient operations and enhanced services to Canadians.

Roadmap

Use cases: Demonstrate business value	**AI governance**	**AI and LLM tools**	**AI playbooks**	**Support employees**
• Ideation • Prioritization • Implementation • Value realization	• Steering committee • Ethics • Legal • Technical	• Infrastructure • AI platform • Environments • COTS – Co-pilot etc.	• Best Practices • Guidelines • Checklists • Ways of working	• Communication • Change Management • Training

Use Cases Pillar



1 SAS to R/Python conversion

2 ICN Chatbot

3 English/French translation

4 HR: Job descriptions / SOMC creation

5 Respond to pay service requests

6 Answering questions about HR

7 Interviewer training materials development

8 Chatbot for interviewers

9 AI Augmented job role (co-pilots)

10 Website – publication chat (IntelliStatCan)

11 Code generation, testing and QA

12 ATIP use case

13 EQ chatbot for respondents

Use Cases Pillar (cont-d)

- Complete production implementation of use cases (IntelliStatCan; Translation etc.)
  - Assess business benefits
- Continue ideation sessions to identify a pipeline of use cases
- Use AI governance to prioritize and govern implementation of use cases
- Prepare for democratization of Gen-AI technology – programs having access to low-code / no-code Gen-AI technology to implement use cases (Copilot Builder; AzureAI Studio etc.)

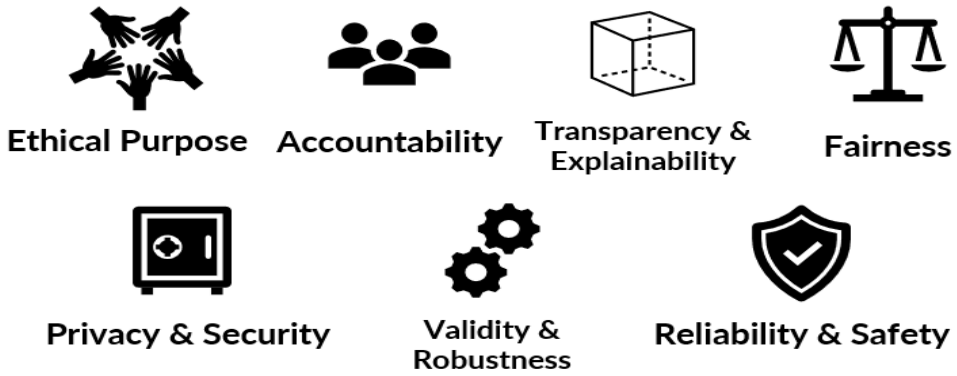
Governance Pillar

Strategic governance – AI Adoption Working Group:

- Representation from all fields, co-chaired by IT and Methodology areas
- Oversee business impacts and set direction/vision
  - Including legal and ethical dimensions

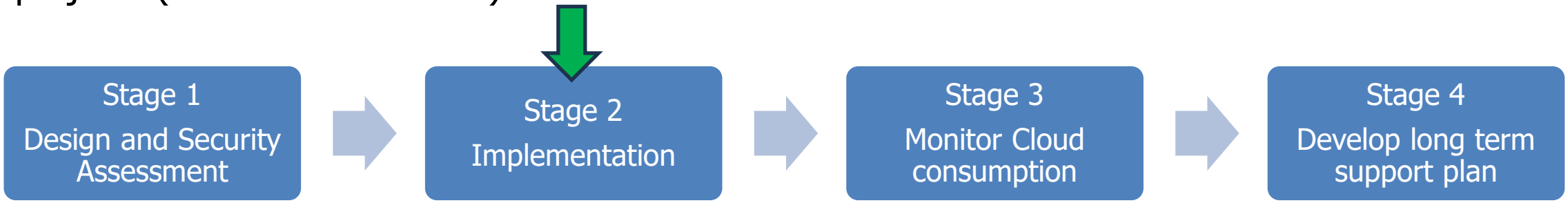
Technology governance: Enterprise Architecture Review Board

Responsible AI – Core Guiding Principles (Aligned with Government of Canada)



AI Tools Pillar

- **Objective**: Implementation and support for the required infrastructure to support innovative projects (AI + LLMs + others)



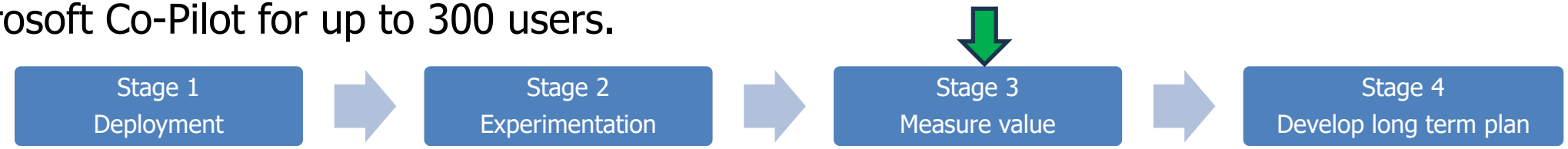
- **Value**: Support a streamlined process from idea to implementation

- **Impact on Organization**: Have a scalable and reproducible infrastructure to support innovative use cases and minimize time to production for new products

- **Risk of Not Doing**: We will not be able to support AI projects and other investment projects requiring a managed experimentation environment

AI Tools Pillar (cont-d)

- **Objective**: Invest in our workforce and workplace and increase productivity by Implementing Microsoft Co-Pilot for up to 300 users.



- **Value**: Enhancing employee performance through content generation (draft emails, records of discussion, presentations etc.) and information retrieval and search (find and summarize documents)

- **Impact on Organization**: Enhance productivity, Mental health, wellness and innovation, Healthy workplace, Increased employee satisfaction (modern tools to reduce high workload pressures and increase productivity)

- **Risk of Not Doing**: Impacting the organization's competitive edge. Impact on employee retention (mental health, significant workload, not having access to modern tools). People will use public tools leading to a heightened risk of security breaches and loss of trust

AI Playbooks Pillar

- First draft of STC Guidelines on AI
- Draft modular architecture for AI applications
- Business framework to assess new AI use cases
- Define AI for StatCan purposes
- Drafting AI strategy for StatCan

Employee Support Pillar

Four groups of users:

- Basic
- Sophisticated or Prompt engineers
- Data Scientist
- Infrastructure

Communication plans tailored to each group

Community of Practice

Group-appropriate training; leveraging training by Canada School of Public Service; targeted training in-house

Initial training and community of practice for M365 Co-pilot

Lessons Learned

- AI has been successfully leveraged for ingestion of unstructured data
  - Image processing, NLP for PDF documents, classification of comments, etc.
- LLMs have some successes in optimizing *operations*
  - Summarizing discussions, creating presentations, writing minutes, etc.
- Investigations into other uses are promising
  - Translation of confidential documents, improving coding to classifications, improved optical character recognition, etc.
  - Most of these are internal operations where a **knowledgeable** human is in the loop
- LLMs are not quite there for external uses
  - LLMs are being leveraged for their fluency, but content is not there yet

Questions and Discussion

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Questions? Contact us: infostats@statcan.gc.ca