

AI Adoption Roadmap

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The views expressed in this presentation are those of the author and not necessarily those of Statistics Canada



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Agenda

- Opportunity at all our doorsteps
- Statistics Canada's Roadmap to AI adoption
 - Beyond Research: Fully Integrating AI
- Pillars of the roadmap
- ~~Lessons learned~~ My observations



Opportunity at all our doorsteps

- **Leverage Artificial Intelligence**

- Ingestion of unstructured data: Images, natural language documents and comments, etc.
- Automation of processes: Classification of comments, coding to standards, Co-pilot, translation of confidential documents, etc.

- **The need**

- Maintain our 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 AI (and Gen-AI) methods and technologies

- Not acting represent a lost opportunity which could result in Canadians using low quality 'official statistics' and reputational risks for StatCan



Opportunity at all our doorsteps

ALGORITHMIC APPLICATIONS



Service delivery &
support



Information
management



Workflow
automation



Coding & Data
manipulation



Production of
statistical estimates



Interpretation and
dissemination

INFERENTIAL APPLICATIONS



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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

- Ideation
- Prioritization
- Implementation
- Value realization

**AI
governance**

- Steering committee
- Ethics
- Legal
- Technical

AI tools

- Infrastructure
- AI platform
- Environments
- COTS – Co-pilot etc.

AI playbooks

- Best Practices
- Guidelines
- Checklists
- Ways of working

**Support
employees**

- Communication
- Change Management
- Training



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Use Cases Pillar

- 'Let a thousand flowers bloom' vs 'Have a gardener manage the garden'
- Many **ideation sessions** to identify and develop use cases have occurred
 - Few use cases have actually been put into production
- Use cases should be selected with the goal of **implementation into production**
- Use **AI governance pillar to prioritize and govern implementation** of use cases



Use Cases Pillar

- AI Use Case Business Framework to assess use cases
- Three main dimensions: Business value, Strategic alignment and Feasibility
- Business value
 - Enhance data products, cost efficiency, productivity, timeliness, *risk to StatCan*
 - Risk to StatCan
 - Public trust, privacy and confidentiality, relevance, accuracy and resources



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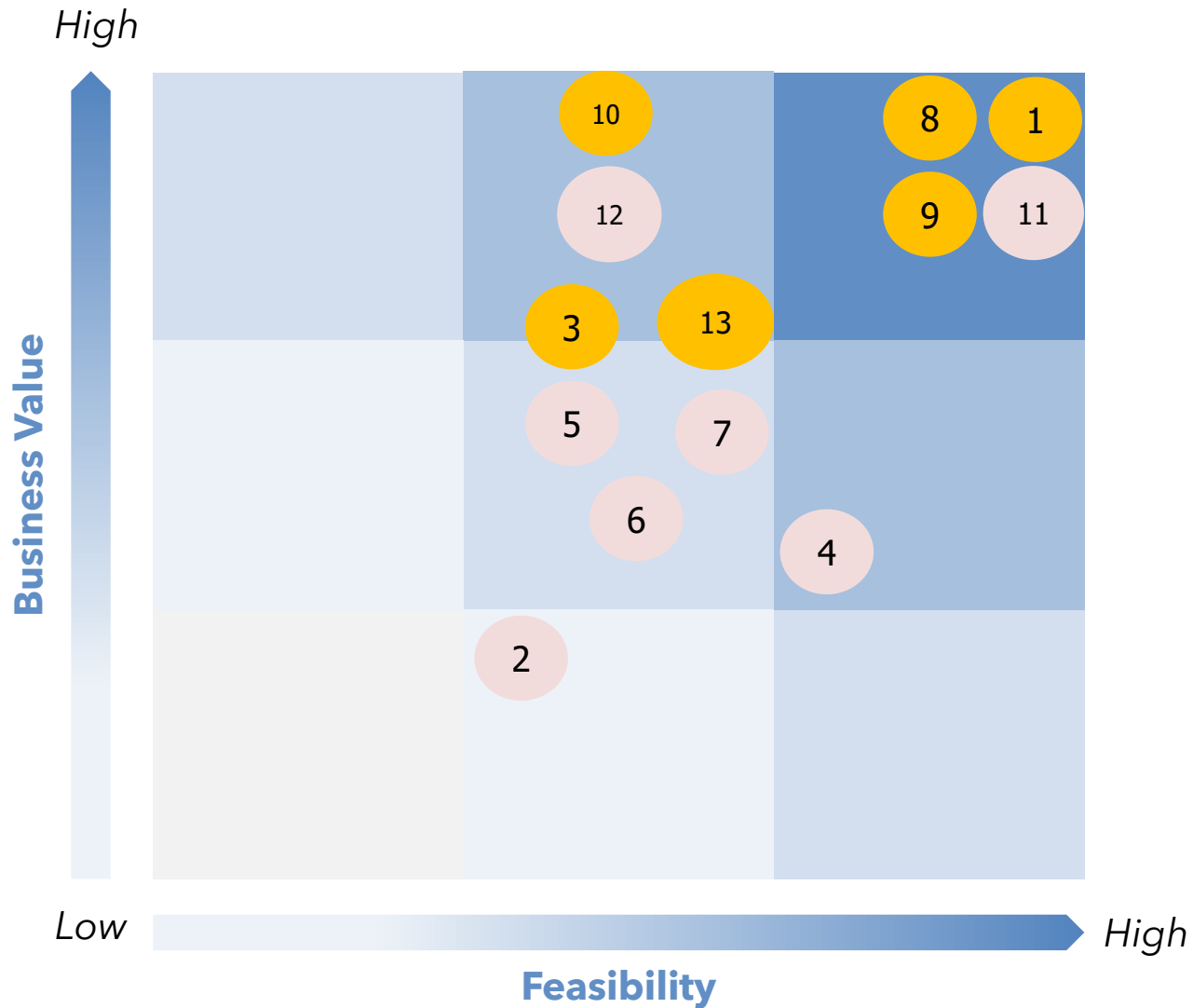


Use Cases Pillar

- Strategic alignment
 - StatCan's strategic plan
 - Government of Canada priority
 - International collaboration priority
- Feasibility
 - Technical
 - Urgency
 - Funding
 - Long-term feasibility (costs, support, maintenance, etc.)



Use Cases Pillar - Examples



- 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 Case: IntelliStatCan

Problem Statement

- External website search is a challenge for end-users
- Accelerate discovery of StatCan information for the end use.

Solution (RAG – retrieval-augmented generation)

AI Engine

- MS Azure OpenAI Model API service (Model as a service):
 - GPT 3.5 Turbo 16K
- Azure AI Search (formerly Cognitive Search) Hybrid (combines the strengths of vector and key word search)
- Dissociate Response Generation from Search Function - Orchestration

Data

- 18,000+ website publications in pdf, both English and French
- Excludes Tabular Data, and non-text media (graphics, videos, etc.)

The screenshot displays the Statistics Canada website interface. At the top, there is a navigation bar with the Canadian flag, the text 'Statistics Canada' and 'Statistique Canada', a search bar labeled 'Search website', and a language selector for 'Français'. Below this is a horizontal menu with categories: Subjects, Data, Analysis, Reference, Geography, Census, Surveys and statistical programs, About StatCan, and Canada.ca. A blue information icon precedes a notice: 'Notice: Some sections of the Statistics Canada website will be unavailable on Saturday, November 2, 2024 between 9:00 a.m. and 9:00 p.m. (Eastern time) due to maintenance. We apologize for any inconvenience.' The main heading is 'Statistics Canada', followed by a paragraph stating the agency's role. To the right are social media icons and a sign-up prompt: 'Sign up to My StatCan to be notified of information on various topics.' Below this, there are three featured sections: 'In the news' with a link to 'The Daily' and a snippet about payroll data for October 31, 2024; 'Consult the Canadian Internal Trade Data and Information Hub' with an image of a truck and a link to 'Explore the Food Price Data Hub'; and 'Key indicators' with a dropdown menu set to 'Canada' and a display of the 'Quarterly population estimate' for July 1, 2024, showing 41,288,599 people, a 0.6% increase quarterly.

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Statistics Canada is the national statistical office. The agency ensures Canadians have the key information on Canada's economy, society and environment that they require to function effectively as citizens and decision makers.

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In the news | [The Daily](#)

October 31, 2024

Payroll employment, earnings and hours, and job vacancies, August 2024

[Consult the Canadian Internal Trade Data and Information Hub](#)

[Explore the Food Price Data Hub](#)

Key indicators | [★ All indicators](#)

Canada

[Quarterly population estimate](#)
(Note) (July 1, 2024)

41,288,599

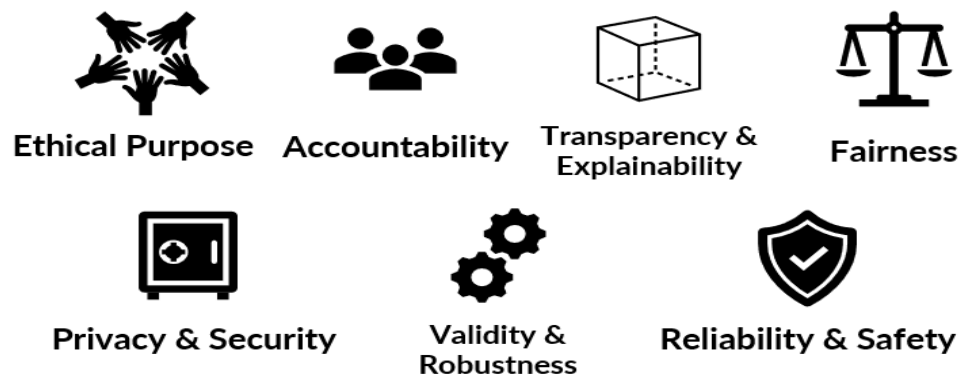
0.6% ↑
(quarterly)

Governance Pillar

Technology governance: Enterprise Architecture Review Board

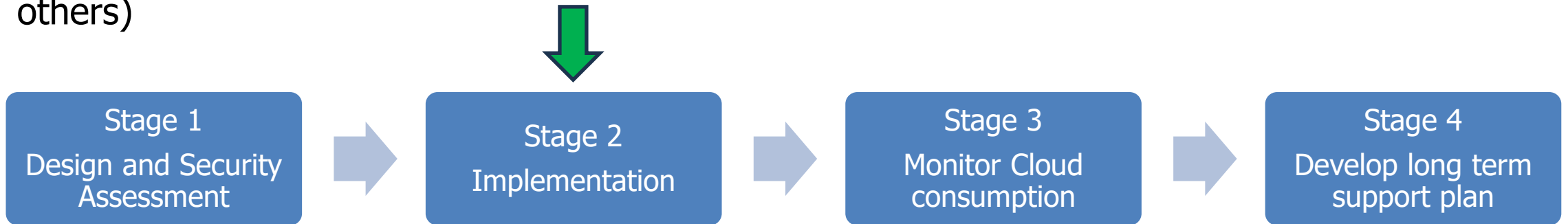
Strategic governance: AI Adoption Working Group

- Representation from all areas, co-chaired by IT and Methodology areas
- Oversee business impacts and set direction/vision
 - Including legal and ethical dimensions
- Responsible AI – Core Guiding Principles (Aligned with Government of Canada)



AI Tools Pillar

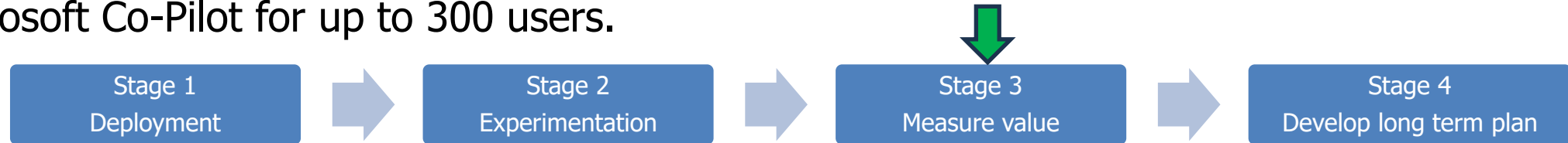
- **Objective:** Infrastructure required to implement and support innovative projects (AI + LLMs + others)



- **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
 - Use cases end as proof of concepts

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 and 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~~ My Observations

- Organizational definition of AI critical
 - Everyone speaking the same language
- AI has been successfully leveraged for ingestion of unstructured data
 - Image processing, NLP for PDF documents, classification of comments, etc.
- Coordination of use cases will be very useful
 - Business value
 - Feasibility from culture and technology points of view



~~Lessons Learned~~ My Observations

- 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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StatsCAN Plus

The Daily

Website

Surveys and statistical programs

Data service centres

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



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