



Canada School
of Public Service

École de la fonction
publique du Canada



Enhancing Regulatory Insights and Policy Analytics through Artificial Intelligence, Rules as Code and Blockchain

June 2019



Objectives

1

Review drivers of change and implications for regulators

2

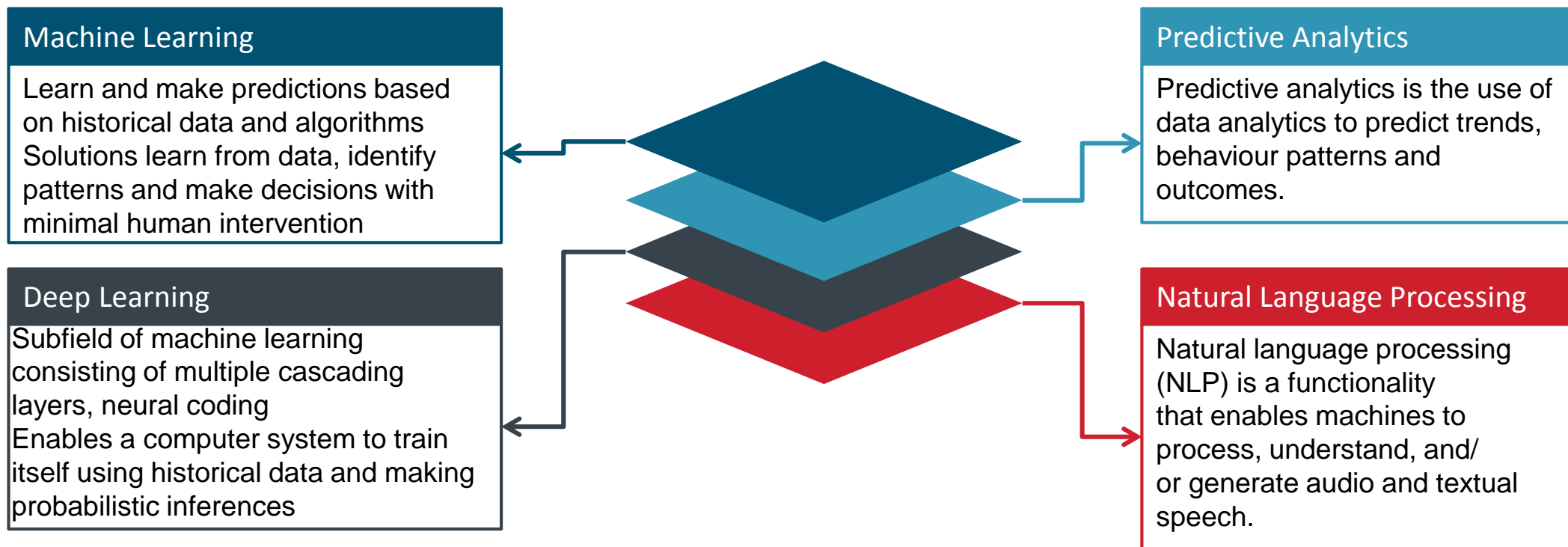
Results of Phase I/II of AI for Regulatory Insights Project

3

Phase III Projects and Other Demonstrator Projects

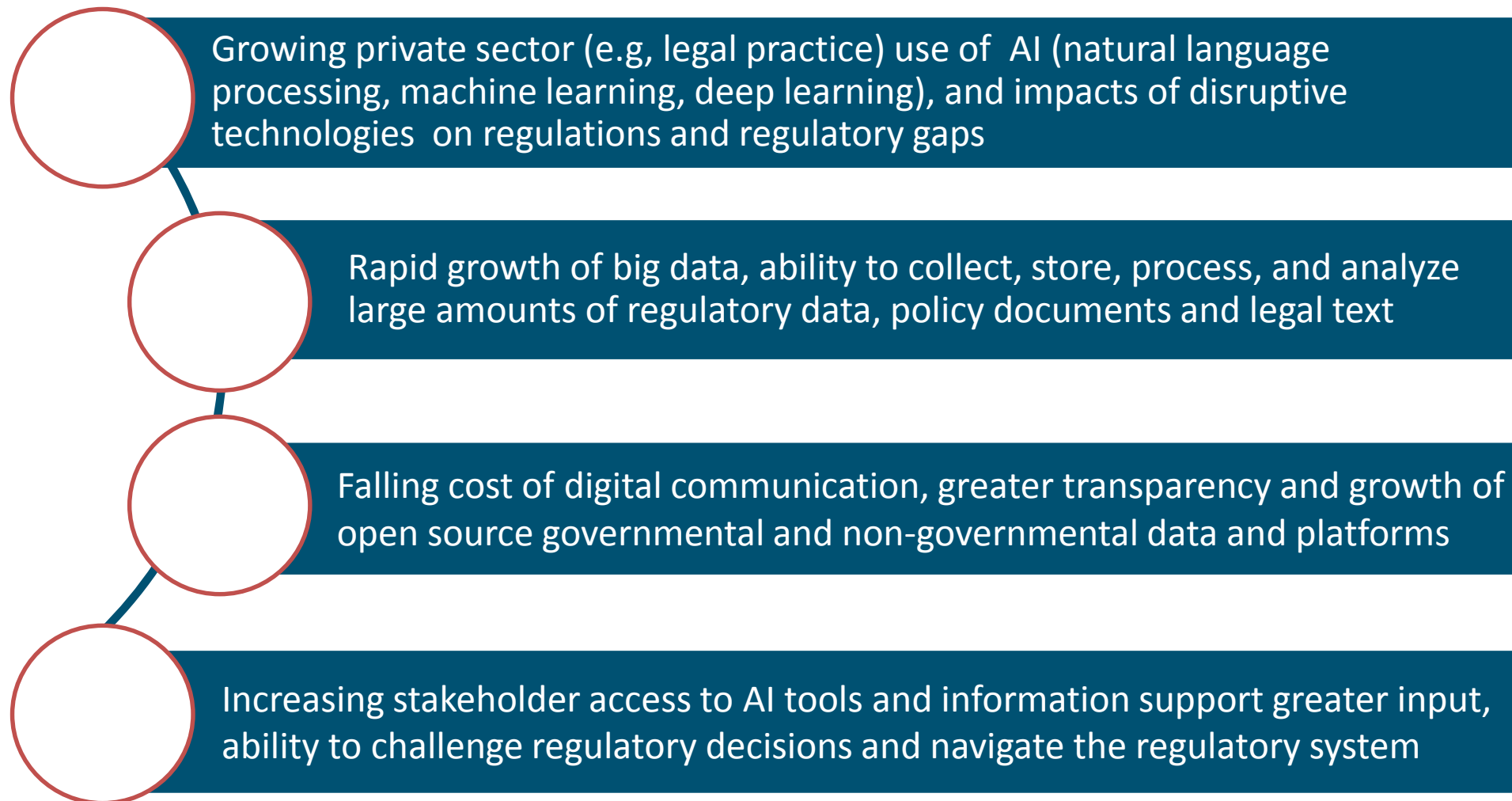
Artificial Intelligence (AI) Defined

AI solutions apply machine learning, deep learning, and various types of training data to identify patterns, produce insights, enhance knowledge-based work, and automate routine tasks.





AI and Regulations – Why Now?





Machine Learning for Regulators

Regulatory Review

Facilitating stock reviews in line with Cabinet Directive, including impact, complexity and flexibility and coherence (foreign, fed-prov, municipal)

Regulation-Making

Informing regulatory scan and design (e.g. instrument choice) and due diligence on coherence, complexity and flexibility

Promoting Compliance

Tools for regulated parties to maintain awareness of regulatory changes across departments and agencies

Verifying Compliance

Identifying patterns in behaviour and risk relative to changing requirements and available resources

Enforcement and Legal Risk Assessment

Expediting analysis of legal risks by analyzing large amounts of case-law and judicial information



EVALUATING REGULATORY STOCK: THE CHALLENGE



- **2600 FEDERAL REGULATIONS**

Thousands of additional foreign/provincial-territorial and municipal regulations

- **MANUAL ANALYTICAL PROCESSES**

- **PAPER-BASED**

- **RESOURCE INTENSIVE**

- **NO LINKS TO DATA BY INDUSTRY/OUTCOMES**



REGULATORY INSIGHTS: CALL TO ACTION



- **DEMONSTRATE THE ART OF THE POSSIBLE**

RFP launched in summer 2018 to seek insights on use of AI in analysis of regulations

- **OVERLAP AND DUPLICATION**

- **FLEXIBILITY AND PRESCRIPTIVITY**

- **INDUSTRY AND SUPPLY CHAIN BURDEN**



Reg Insights Phase I: Insights and Results

Insights Based on Own Knowledge

Linking regulatory text to outcomes and Regulatory Impact Analysis Statements / call for enhanced data architecture

Incorporation by Reference

Metrics on regulation and areas of GoC that use IBR and considerations for future work.

Comparative Analysis

Systematic analysis, mapping and metrics of the corpus of regulations between Canada, U.S., EU and provincial-territorial regulations

Language of Regulations

Assessing relative prescriptivity, restrictiveness, predictive modelling to evaluate or predict likelihood of legal challenge

Consolidation and Streamlining

Patterns and trends (age, growth, coherence) by NAICS industry or sector, reg chatbots and desktop interactive platforms to detect inconsistencies, overlap, links media coverage

Compliance/Reporting Burden

Identifying outdated technological terms and requirements by department and sector

**Qualified Proposals
Received in Response
to Summer 2018 RFP
(17 AI firms and
organizations)**



Government
of Canada

Gouvernement
du Canada

REG INSIGHTS RFP YIELDED 17 VENDOR PROPOSALS





Reg Insights Phase II: Showcase

Vendor Showcase

All vendors qualified under mandatory criteria are invited to participate and showcase work
(E.g. booth in a marketplace setting)

Top Vendors Presentations

Vendors who score highest under the points-rated criterion will present their work at the Showcase (in-person by invitation and Webex for federal public service)
(E.g. pitch format – 10 to 15 minutes)

**October 19, 2018 Showcase
(Ottawa)**
Demos, presentations and booths
by top proposals and bidders

GoC Senior Management

Senior GoC management (Deputy Minister, Assistant Deputy Minister and Director Generals) invited to attend and engage vendors

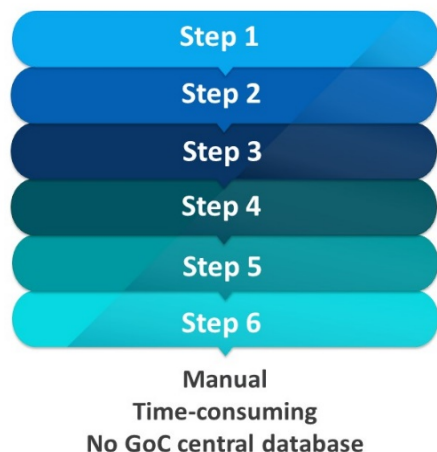
Highlights

All qualified proposals will highlighted via web, social media and digital channels

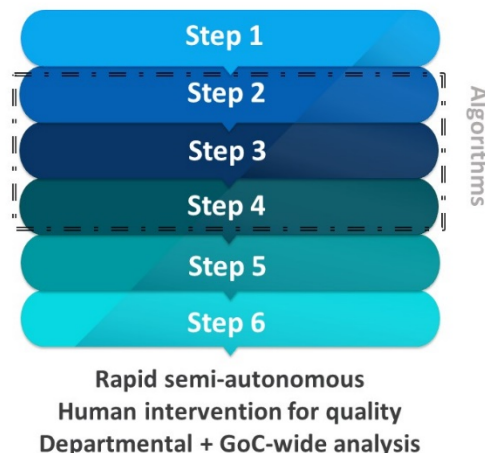


Reg Insights Phase III: Incorporation by Reference Intelligent Search Tool

Current Manual
Incorporation by
Reference
Document Search
Process
=
months



Automated IBR
Document Search
Process:
Intelligent Document
Search Platform
=
hours



Objective: Deliver a tool that compiles info on regulations involving Incorporation by Reference (IBR)

Current practice

- IBR identification and review is currently a manual time consuming process (over 4,000 references in regulations)
- Significant staff time to find and record attributes of docs incorporated by reference (e.g., location, cost, language)
- Due to the manual workload, continuous monitoring is a major challenge and risk of human error is a factor

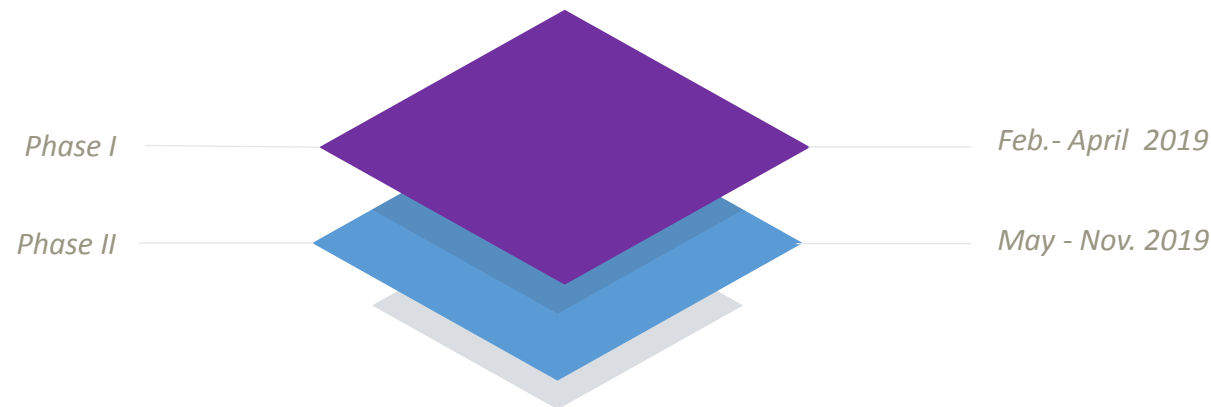
Expected Outcomes: Improve speed and accuracy of IBR monitoring

Key Steering Committee and Project User Group Members:

Community of Federal Regulators, Environment and Climate Change Canada, ESDC, Transport Canada, Standards Council of Canada, Treasury Board Secretariat, Justice



IBR Milestones and Deadlines



Phase I (\$11,600)

- Contractor delivers draft methodological report to Steering Committee (February 2019) - COMPLETED
- Contractor works with federal regulatory community on Minimum Viable product (MVP) towards full working prototype by June 2019.
- The Contractor produces a report for client users that includes instructions on how to use the tool and considerations and recommendations for refinement.

Phase II (\$75,400)

- Project User Group and Steering Committee engages in larger volume testing (Spring 2019).
- Updated feedback on the results of testing and viability of the solution provided to contractor.
- Contractor further refines and submits a final version of the solution by August 2019.
- Project close-out in early Fall 2019.



Reg Insights Phase III: Regulatory Evaluation Platform



Objective: Accelerate more complex analysis and new insights into regulations and impacts on stakeholders

Current practice

- Manual review of Justice website documents
- No systematic tool for compiling info on multiple jurisdictions, by sector/industry, to evaluate complexity, flexibility, conflict, and terminology

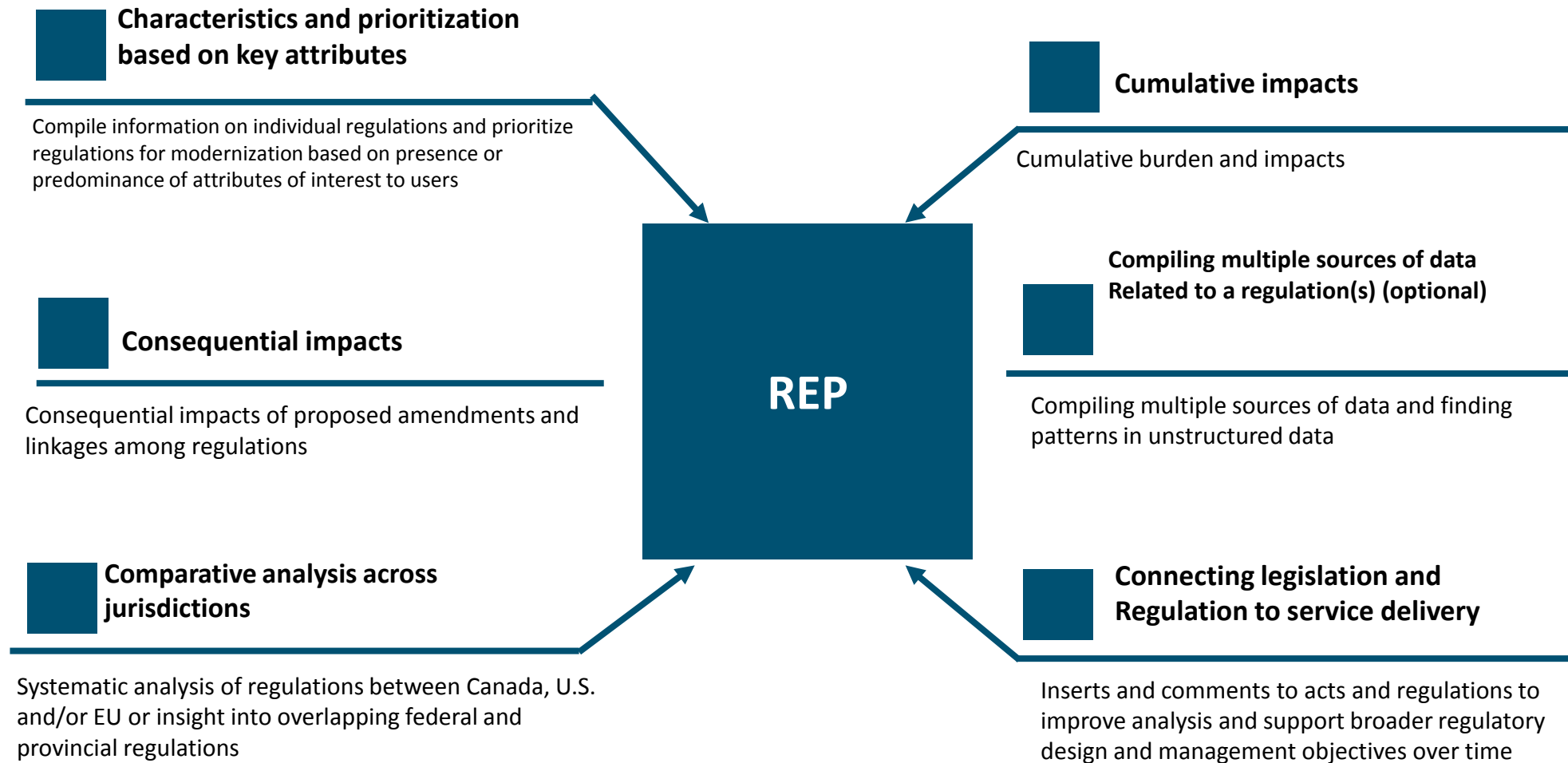
Expected Outcomes:

- Timely, less labour intensive insights and analysis to inform advice or decisions – reallocation of staff time
- Adapts private sector applications (e.g., audit) to needs of regulatory and legislative analysts and policy advisors
- Responds to practical needs while facilitating learning

Key Steering Committee and Project User Group Members: Community of Federal Regulators, Agriculture and Agr-food Canada, Innovation Science and Economic Development Counsel, Transport Canada, Treasury Board Secretariat, Justice



REP Use Cases





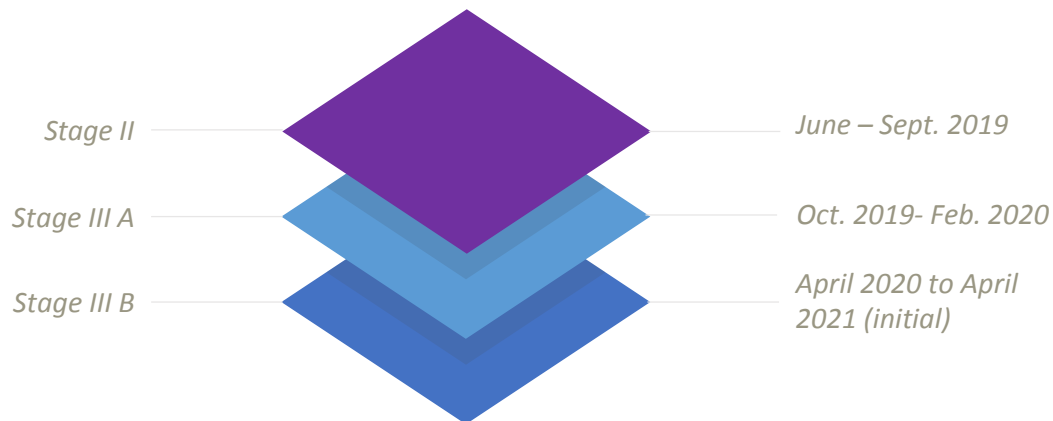
REP Phases and Milestones

Stages And Duration (Business Days), Budget And Deliverables

An iterative approach will be pursued for the REP solution. The School, with the support of a Steering Committee and Project User Group, will work with the Contractor(s) on all phases of the REP project.

Stage II Prototypes (\$150,000) – 65 Days

- Selected contractors engage to understand user needs and iteratively build prototypes
- Contractor submit cloud-based prototype
- Evaluation Panel reviews prototypes to ensure they meet mandatory requirements / Assessment teams (independent from PUG) assess usability
- Draft Implementation, Release and Support Services (IRSS) Plan submitted detailing final functionality, training and servicing if awarded Stage III work.



Stage III A Finalize (\$170,000) – 100 Days

- Prototype selected to finalize, following rigorous testing, for accessibility, official languages and cloud deployment
- Updated user guide and a final IRSS Plan
- Includes access and training

Stage III B (deployment)

- Finalized solution deployed for up to 200 end users across federal departments
- Ongoing support and maintenance
- Up to 48 month subscription



Questions?

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