Statistics Canada's Response to COVID-19 Data and Information Need

International Conference on Big Data for Official Statistics

August 31st, 2020

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Delivering insight through data for a better Canada

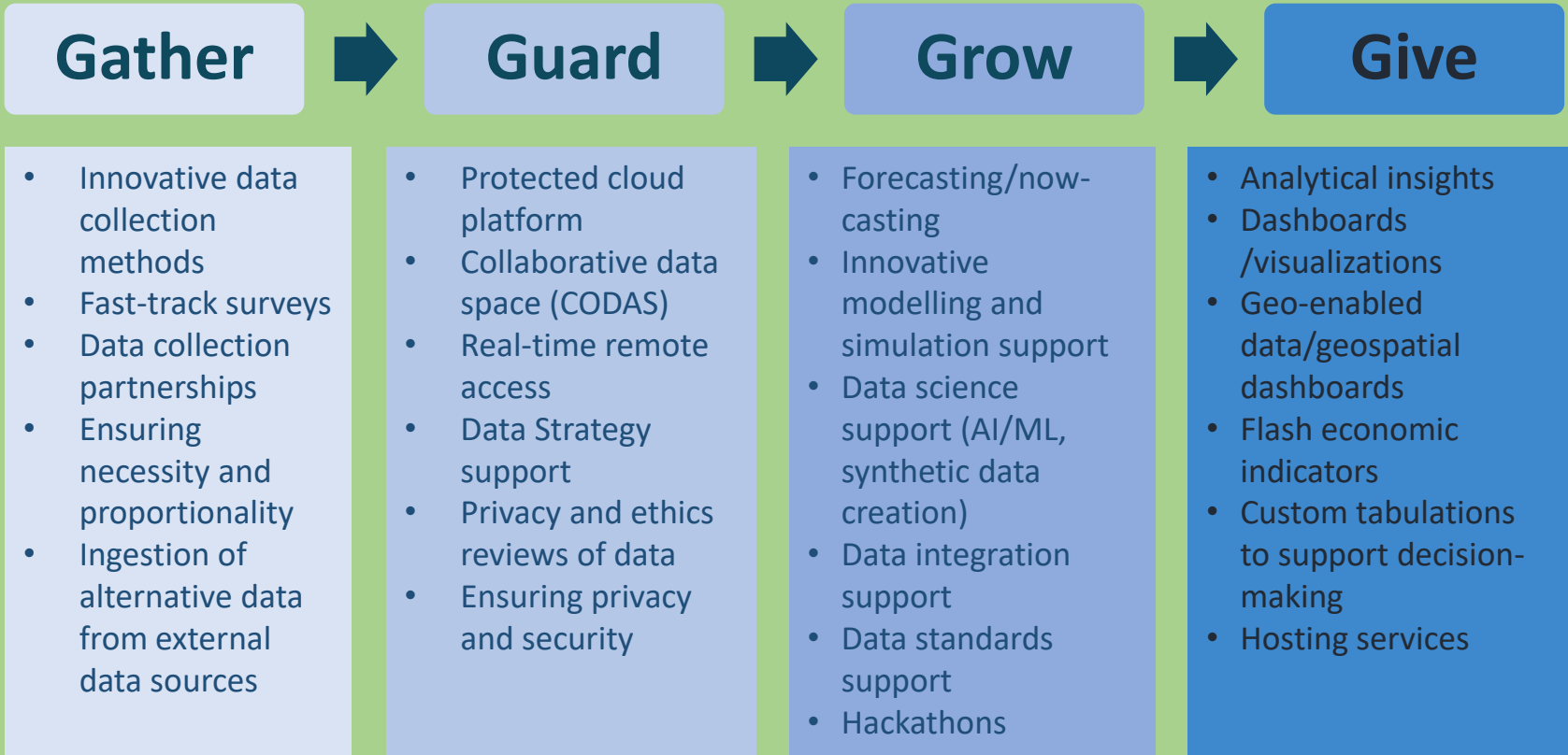# A Solid Data System for Addressing Emerging Data and Information Needs

Ethics, Privacy and Transparency

Metadata, Data Standards, Data Protection and Quality Guidelines

Infrastructure Support – Convening & Facilitating – Baseline Data & Analysis

Real Time Data Provisions

- Flash indicators
- Use of crowd-sourcing, web scraping and web panels
- Data partnerships
- Data support (data processing, data wrangling)
- Measuring emerging data & information needs

Gather

- Innovative data collection methods
- Fast-track surveys
- Data collection partnerships
- Ensuring necessity and proportionality
- Ingestion of alternative data from external data sources

Guard

- Protected cloud platform
- Collaborative data space (CODAS)
- Real-time remote access
- Data Strategy support
- Privacy and ethics reviews of data
- Ensuring privacy and security

Grow

- Forecasting/now-casting
- Innovative modelling and simulation support
- Data science support (AI/ML, synthetic data creation)
- Data integration support
- Data standards support
- Hackathons

Give

- Analytical insights
- Dashboards /visualizations
- Geo-enabled data/geospatial dashboards
- Flash economic indicators
- Custom tabulations to support decision-making
- Hosting services

Data Expertise

- Data quality
- Interoperability standards
- Scientific methods
- Innovation
- Geospatial expertise
- Custom data output

COVID-19 has increased the need for quality data, and Statistics Canada has been responding

- **New Data Collection and Creation –** Collection of detailed confirmed cases of coronavirus disease (COVID-19); new survey to collect data on the Impacts of COVID-19 on Canadians; new open data sources to identity hospitals
- **New Data tables**
- **New Tools -** New economic dashboard, Canadian Statistical Geospatial Explorer (CSGE)
- **New Insights** – *StatCan COVID-19: Data to Insights for a Better Canada*

https://www.statcan.gc.ca/eng/covid19?HPA=1

NEW data sources developed created through crowdsourcing and web panels

Public Use Microdata files (PUMF) available for download from the StatCan website

https://www150.statcan.gc.ca/n1/en/catalogue/45250005?HPA=1

NEW Tool - Canadian Statistical Geospatial Explorer – a gateway to city data

- The CSGE empowers users to discover Statistics Canada's geo-enabled data down to the smallest level of detail available - dissemination area.

- Users can find, explore then export data in various formats to use in their workflows including custom maps – built-in tutorials to help users!

- Great tool for city planners and policy makers to access the data they need to inform decision-making

Visit the CSGE Hub…. https://www150.statcan.gc.ca/n1/pub/71-607-x/71-607-x2020010-eng.htm?HPA=1

4

New economic indicator development

➢ Flash Estimates (GDP, PPI, etc.)

➢ Use of Scanner data

➢ Provincial/territorial economic activity indexes

➢ Monthly business openings and closings

Economic Flash Estimates

Import Transactions

Statistics Canada published a count of import transactions for April just days after the reference month. This can be interpreted as a bellweather indicator for the value of imports and exports.

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IIP Flash

An International Investment Position flash estimate was produced days after the first quarter 2020 to provide insights into Canada's international financial transactions.

GDP Flash Estimates

A monthly GDP flash estimate has been produced to meet user requirements for timely estimates of economic activity.
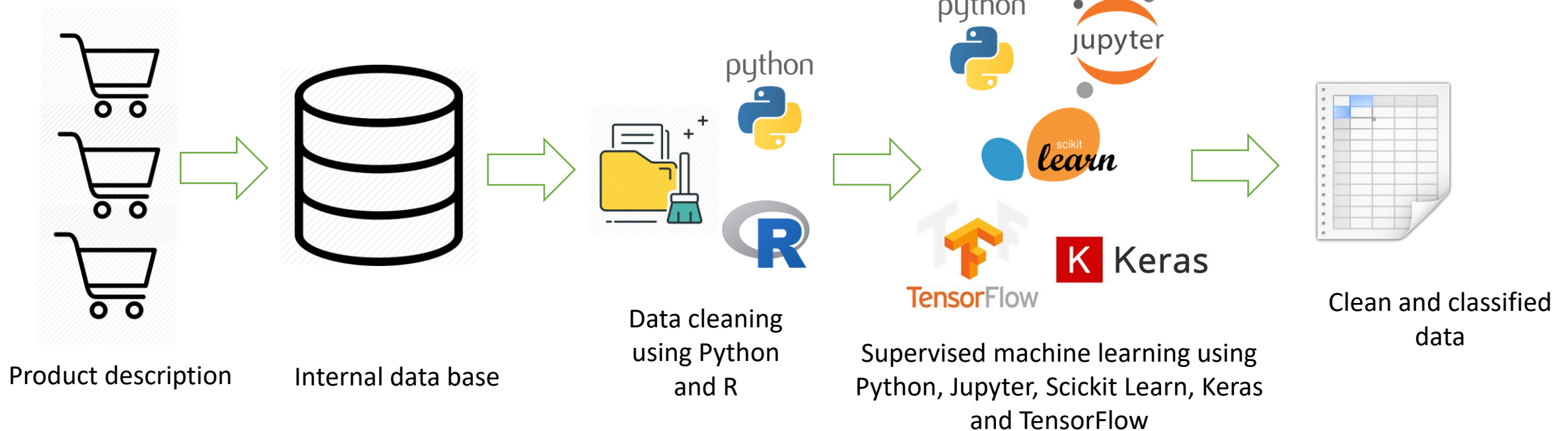
IPPI Flash

Users can get an earlier idea of the impact of oil and other prices changes on the Industrial Product Price Index with its flash estimate.

index (2010=100)

Note(s): May 2020 data are flash estimates, use with caution.

Source(s): Industrial Product Price Index (2318).
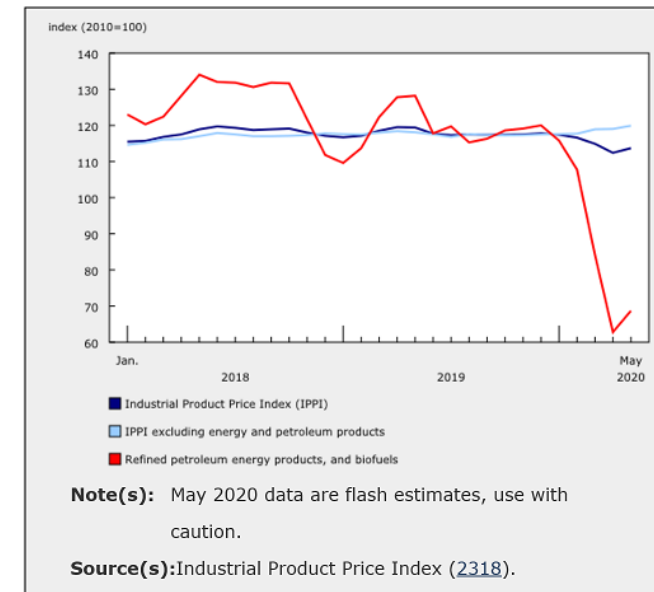
As part of Statistics Canada's prioritization on providing COVID 19 insights, several new products have been created related to economic statistics. These innovative products provide timely context on the impact of COVID 19. There are longer term possibilities for some of these products if there Is user demand.

CPI USE OF SCANNER DATA – PROCESS FLOW

Barcode data

Product description

Internal data base

Data cleaning using Python and R

Supervised machine learning using Python, Jupyter, Scickit Learn, Keras and TensorFlow

Clean and classified data

52-week change in weekly sales for select health and personal care items

RESPONSE TO COVID-19

- The use of scanner data allowed STC to inform decision makers and public during the pandemic

- An important source of information for tracking changing consumer habits on a monthly basis

- STC has published a number of articles on changing consumer behaviour during the pandemic:

[Canadian consumers prepare for COVID-19](#)

[Study: Canadian consumers adapt to COVID-19](#)
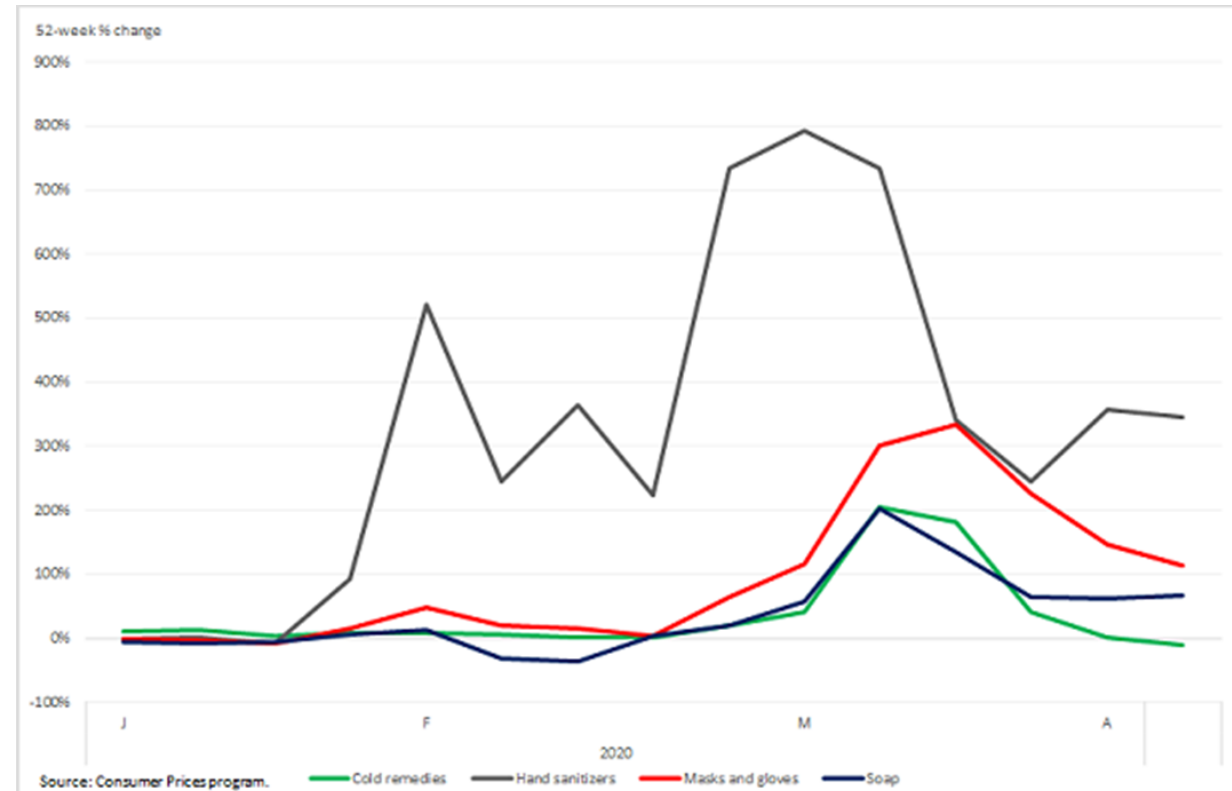
# Provincial/territorial economic activity indexes

- Results show that Alberta, Saskatchewan, Ontario, Quebec, Nova Scotia and New Brunswick are among the hardest hit by the pandemic.

- Because of data limitations for smaller provinces and territories, not all approaches can be applied for each of them. A simple OLS method that only uses employment, exports and retail trade is used as a basis for comparison.

- The monthly indexes show large swings in activity, particularly around business cycles and commodity cycles.

- PCA exhibits the most variability, while LASSO generally gives the least.

Chart 1
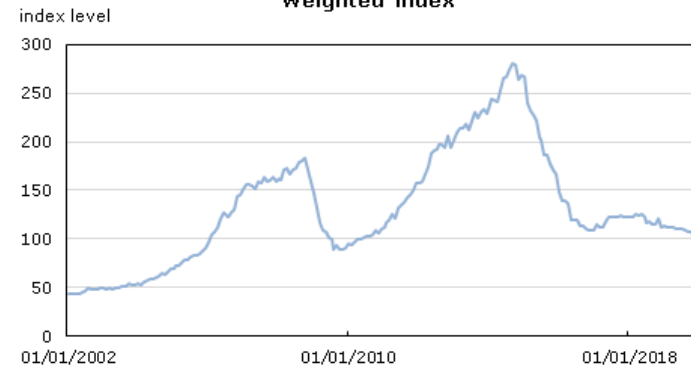Alberta: activity indexes; nu=0.39
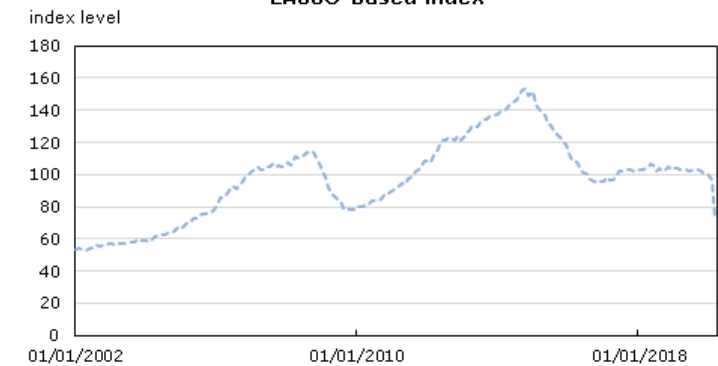
Principle component based activity index

Simple index
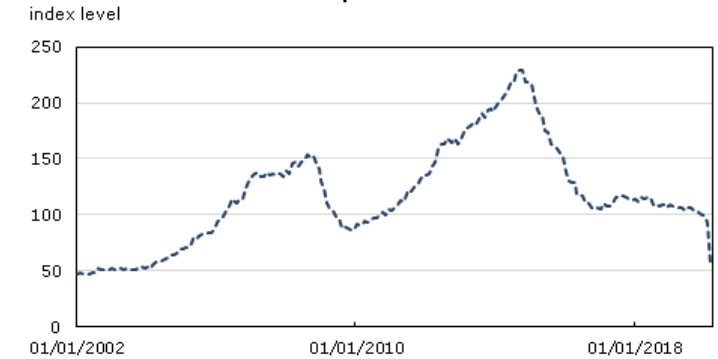
Weighted index

LASSO based index

Notes: LASSO = Least absolute shrinkage and selection operator.
Source: Statistics Canada, authors' calculations.

Monthly business openings and closures

- In April 2020, 88 000 businesses closed, more than twice the level observed in April 2019.

- There were 32,803 business openings in April 2020, a decrease of 18.3% compared to April 2019.

- Accommodation and food, other services and retail trade were most affected.

- In the next few months we will see: How many businesses will reopen? How many of the closures are permanent? How many new firms will enter to replace the exits?

Chart 1
Monthly business openings and closures in the business sector, Canada, January 2015 to April 2020, seasonally adjusted series
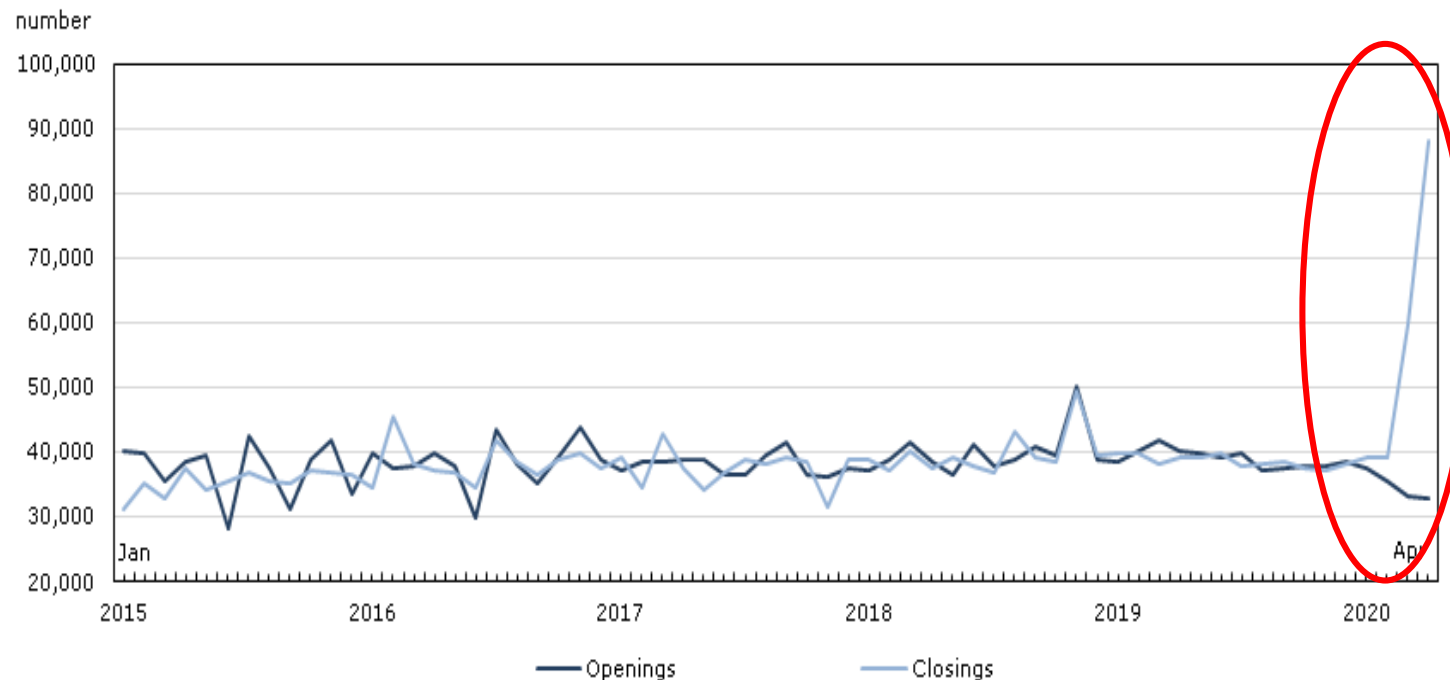
Source: Statistics Canada, Table 33-10-0270-01 from the Common Output Data Repository (CODR).

Tracking the recovery from COVID-19

A roadmap is being created to prioritize the development and release of data, metrics and analytical outputs that are most relevant for monitoring and evaluating the economic recovery.

Evaluations will be based on subjective criteria that assess the implications of COVID-19 for: **inclusiveness, sustainability and resiliency**.

➢Metrics and analytical outputs to evaluate the economic recovery includes:
- Macroeconomic indicators
- Workers and labour market – inclusive participation
- Business adaptation and resiliency
- Family finances

➢Challenges
- Real time indicators
- Private sector data availability and quality
- Necessity and proportionality (ethics)

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Canada