

Data-Works Costing Framework

Purpose

The Data-Works Costing (DWC) Framework is a tool to assess the data-works cost within any initiative, project, program or policy within the Department.

Audience (Roles and Responsibilities)

This document may be used by clients to help walk them through the transparent Chief Data Officer Branch (CDOB) costing of data-works within their initiative, project, program, or policy within the Department. It is the role of the **client** to:

- Inform the CDOB DWC Lead of their new program, project, or initiative;
- Update the CDOB DWC Lead of any changes within or around their new initiative, project, program or policy;
- Stay involved in the data-works costing exercise; and
- Seek approval from the Chief Data Officer for Plan of Work integration.

It is the role of the **Chief Data Officer Branch Data-works Costing Lead (DWC Lead)** to:

- Coordinate a committee of data-work representatives within the branch;
- Communicate programs, projects, or initiatives informed by clients to the data-work representatives;
- Facilitate the client's discovery and completion of the data-work for their program, policy, or initiative; and
- Inform the CDOB Extended Management Table of the data-work to be completed.

Data-works Costing Application

The CDOB is part of the IRCC corporate formula and has a budget to continue Data Strategy work within the Department. Therefore, before the data-works costing framework is implemented for any initiative, project, program or policy, it must be determined whether or not the data-work costing can be covered by:

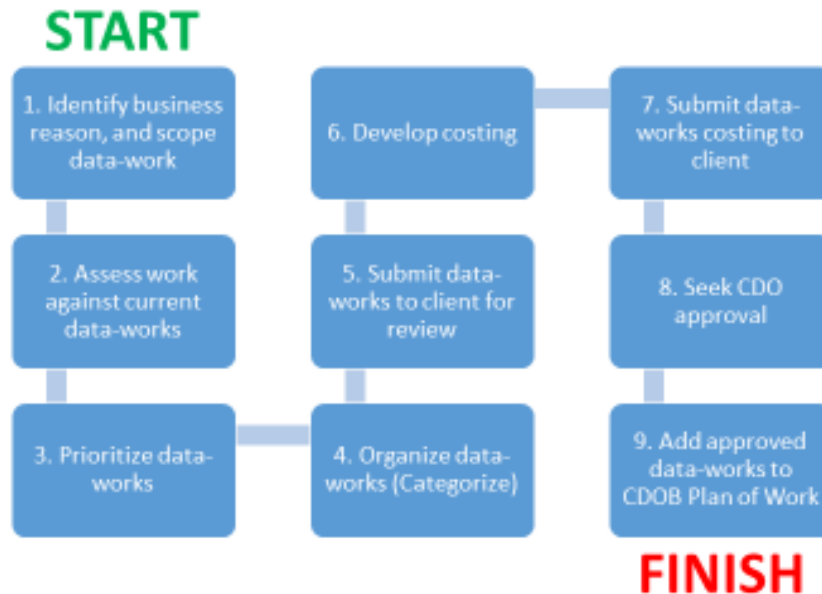
- 1) The Chief Data Officer Branch Corporate Formula; and/or
- 2) The current Chief Data Officer Branch Plan of Work.

If the total data-work requires more financial resources to complete the data-work, then this Data-works Costing Framework would be implemented to calculate the remaining data-work costs.

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Data-Works Costing Framework Overview

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Data-works Costing Walkthrough

1. Identify business reason and scope data-work *(See Appendices 1 and 2)*
2. Assess work against current data-works
 - a. Compare scoped data-work from the previous step with data-work present in the CDOB Plan of Work.
 - b. Determine whether or not the current Plan of Work can absorb the data-work required for the initiative, project, program or policy change.
3. Prioritize Data-works
 - a. Explain to the client how we prioritize data-works.
 - b. Prioritization using the MoSCoW method.
 - i. **Must Have:** The Data-works are critical to the current delivery time in order for it to be a success. This Data-work will have a significant impact on evidence-informed decision-making.
 - ii. **Should Have:** The Data-Works are important (but not necessary) for delivery within the current delivery time. Usually, it is not as time-sensitive, or there may be another ways to satisfy the requirement.

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- iii. **Could Have:** The Data-Works are desirable (but not necessary) and could improve the client experience for a little developmental cost, if time and resources are available.
 - iv. **Won't Have:** The Data-Works are not critical, may have the lowest return on investment, or may not have the time or resources. There is no time or resources available. This may also become a “wish list” item.
4. Organize Data-works (categorize) *(See Appendix 2)*
 - a. Identify where the work will be completed within CDOB, its expected result (output) and its measurable outcome.
 - b. Outline the interconnectedness of the data-work to the data lifecycle, Data Strategy, Data Policy (Data Principles), and Data Intersectionality Map.
 5. Submit data-works to client for review
 6. Develop Costing (Explain steps and how to use the appendices to support) *(See Appendix 3)*
 - a. Determine the FTE Level based on sub-activities to completed.
 - b. Ascertain the number of FTEs required to complete the data-work within the required time.
 - c. Estimate how much time an FTE would require on a sub-activity based on the level of prioritization. *(This is to determine whether or not more FTEs could expedite the data-work, if possible)*
 - d. Visualization of data-work for CDOB. Plot the prioritization, number of months to complete the sub-activity, and the number of FTEs required to complete the sub-activities. **(OPTIONAL)**
 - e. Summarize the data-works costing in a sentence. (E.g. “Data-work Activity” will require “#” of FTEs for “X” months; “Data-work Sub-Activity” will require “#” of FTEs for “X” months.) The summary sentences will require the following components:
 - i. Data-work Activity and Sub-Activities;
 - ii. Number and Level of FTEs for the Data-work Activity and Sub-Activities (Note: Priorities may increase the number of FTEs or the level); and
 - iii.
 7. Submit Data-works Costing to Client
 - a. List of Data-works and Outputs.
 - b. List of Data-works Costs
 - c. List of Data-works Timelines
 - d. List of Data-works consequences & costs of work not completed
 8. Seek CDO approval
 - a. Obtain the Chief Data Officer sign-off of the data-work for each initiative, project, program or policy change to be prioritized and completed as part of the CDOB Plan of Work.
 9. CDOB to add the approved data-work to the CDOB Plan of Work and the [CDOB Costing Summary](#).

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Appendix 1: Identify the Business Reason

1) Identify the issue (Initiative, Project, Program or Policy Change) and its related data.

- A. What problem are you solving?
 - i. What questions are you answering?
 - ii. What is the role of data in solving the problem? (E.g. to report, for evidence-based decision-making, to maintain the same language)
 - iii. What is the anticipated specific outcome?
 - iv. When is the estimated completion date for this solution (*if applicable*)
- B. What data do you need and how will it be used?
 - i. Who might benefit from using this data?
 - ii. How could this data support evidence-based decision-making?
- C. Where will your data come from?
 - i. Does the data already exist in our systems?
 - ii. Does the data exist outside of IRCC controlled systems?
 - iii. Will we be collecting new data?
 - iv. Is it ethical to collect the new data?
 - v. Do you have the authority to use the chosen source?
- D. How will you steward the data?
 - i. Are there any applicable data standards? (Eg. The IRCC Anti-Racism data standard)
 - ii. How will authorized users access the data? (Eg. CDOB data requests, OPPB reports or stats requests)
 - iii. What part of the data lifecycle will be involved when? (Eg. Storage and Use only)
 - iv. Are data stewards assigned responsibility for the data and are they aware of the problem and solution?
 - v. Are there additional stewardship processes required to be defined to support the management of the data?
- E. How will flexibility be built-in?
 - i. Will the data be stored in an accessible space for data integration?
 - ii. Will the data be able to achieve all the data principles? (Secure, Trusted, Accessible, Relevant & Timely, Interoperable, Used Ethically, Supports Innovation)
- F. How will your data be managed?
 - i. Where will the data be stored?
 - ii. How will the data be secured?
 - iii. How will the data be interoperable?
 - iv. Are the data elements defined? (See Data Dictionary with IT)
 - v. Are the data elements documented? (If not, see CDOB-DGP-DGT for Data Business Glossaries and Reporting Glossaries)
 - vi. How long will the project require the retention of this data? (In months, up to 72 months max)

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- 2) Identify the areas of data engagement (with a committee of data-work representatives).**
- A. Complete a Data Quality Assessment (DQA) with other documents.
 - a. Complete a Data Quality Assessment
 - b. Complete a Data Hygiene Report (DHR) for Data Issue Resolution
 - c. Complete a Data Impact & Risk Assessment (DIRA)
 - B. Review related Business Glossaries for definitions, analysis, methodologies, and sources.
 - a. Data Business Glossaries
 - b. Data Reporting Glossaries
 - C. Review related Data Partnerships.
 - a. Identify any Information Sharing Agreements, if any.
 - b. Identify any Strategic Partnerships affected and why. (E.g. Communications, Data Steward Network, the GoC Data Council)
 - c. Identify any impacts to the Data Community (Statistics Canada, OGDs, P/Ts, non-profits, academics)
 - D. Review for any additional Data Development work
 - a. Custom Reports or Custom Data Requests
 - b. Briefing material updates (Presentations, Dashboards, White Papers, Briefing Notes, and Reports)
 - E. Identify Data Program and Policy Map integration with:
 - a. TB Policy on Service and Digital
 - b. IRCC Data Strategy
 - c. IRCC Data Policy
 - d. Any applicable Data Standards
 - e. Any Major IRCC Data or Digital Projects

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Appendix 2: Scope the Data-work Types

The CDOB committee of data-work representatives would align the assessed data-works to the following grid:

CDOB Consultant Data-work Grid			
Data-work Types	Definition	Outputs	Measurable Outcome
Governance			
Data-Quality by Design (DQbD)	The implementation of the Data Policy’s Data Principles ¹ along the data lifecycle management ² for policies, programs and projects.	<ul style="list-style-type: none"> • Data Impact Assessment, • Answers to “What are the data-works required for the policies, programs, and projects success?” • Data-works Costing (i.e. FTEs) • Data costing (i.e. cost of data itself, –pre- and post-DQA, two values as result). • Non-CDO Programs, Projects, and Policies with Data Principles embedded and the Data Lifecycle considered. 	Data Policy’s Data Principles embedded into programs, projects, and data systems adhered to for policy and other initiatives.
Data-Quality Assessment (DQA)	The assessment of the Data Policy’s Principles along the data lifecycle management for policies, programs and projects.	<ul style="list-style-type: none"> • Data Quality Assessment (i.e. data quality dimensions), • Data Quality Assessment Tool • Data Catalogue • Data reporting (e.g dashboards, etc.). 	Program and project data integrity and better evidence-based decision-making.
Data Foundation	The definition of terms used in the data lifecycle and how analysis is generated from these terms. Determine and implement one version of the truth, as this is the foundation of the	<ul style="list-style-type: none"> • Business Glossaries, • Data Catalogues (Data Sources and Holdings, the data catalogue is the end product), • Data Dictionaries 	A common language across all programs and projects and clarity on what terms mean in documents, analysis, and performance measurement. All outputs are evergreen documents.

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	Master Data Model (MdM).		
Data-Issue Resolution	A data-issue is a systematic problem which could occur through the collection, recording, manipulation or storage of data that impacts data integrity, making it unfit for intended uses in operations, analytics, reporting, decision-making and planning.	<ul style="list-style-type: none"> • Data Hygiene Report, • System Change Requests, • Data Issue Tracking Report, • Operational Bulletins • Monthly dashboards 	The monitoring (tracking of resolution) and correction of errors found within data. The increase integrity of data used for evidence-based decision-making. The identification of data issues will be after data-quality assessments.
Data Literacy	The development of data learning tools, techniques, and mindfulness.	<ul style="list-style-type: none"> • Communication Strategy • Data Learning for Analytical Tools (e.g. Tableau) • Data Learning for Management Tools (e.g. Cognos Training) • Data Learning for Analytics • Data Learning for Mindfulness 	Knowledgeable culture of data learning throughout the organization. Mindfulness of data learning tools and techniques available for evidence-based decision-making.
Partnerships			
Information Sharing Framework	Development and implementation of Information-Sharing Hub for the integrated coordination, monitoring and compliance of ISAs	<ul style="list-style-type: none"> • Information-sharing policy • Functional guidance for information sharing activities • Information-sharing Agreements (ISAs) • Management of IRCC Library of Information Sharing Agreements (LISA) 	Effective management of information/data as a corporate asset in alignment with Data Principles in Data Policy through the data lifecycle.
Strategic Data Partnership Framework	Development and implementation of a strategy to enhance the accessibility, interoperability, use, and policy and program relevance of IRCC data	<ul style="list-style-type: none"> • Strategy to expand the use of IRCC data by external partners • Plan for new data integration and leveraging opportunities (e.g. the use of IRCC data 	Growth of data partners and deepening of initiatives using IRCC data across all levels of government, OGDs,

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	through data sharing and data integration with partners	<p>in support of IRCC’s Anti-Racism Data Plan and Statistics Canada’s Disaggregated Data Action Plan)</p> <ul style="list-style-type: none"> • Engagement and consultation with OGDs and inter-departmental partners and stakeholders (e.g. CDO Council, Data Leads, GCDC), P/Ts, Settlement NGOs) in support of the implementation of Data Principles 	P/Ts, STC, academia and non-profits
Data Partnerships with STC, OGDs, P/Ts, non-profits, and Academics	Augment the scope, use and analytical capacity of policy-relevant integrated data assets in collaboration with STC, P/Ts, academics and OGDs	<ul style="list-style-type: none"> • Data Partnership Arrangements (DPAs) and MOUs with external researchers and P/Ts • Privacy Need/Impact Assessments • Expanded data integration between IRCC data, and administrative and survey data sources at STC, OGDs, RDCs and P/Ts • Data-driven initiatives (DDI) with academia to facilitate data collection and use • Monitoring and reporting products regarding the use of IRCC data in external repositories 	Integrated IRCC data is used to expand the evidence-base for trusted insight to inform policy and program development and, measure and monitor integration outcomes, service delivery and impact
Communicating the value of data	Communicate the added value that data development, analytics and partnerships bring to evidence-based policy development, strengthening public trust through	<ul style="list-style-type: none"> • Communications tools and products for IRCC management and staff, and external partners (e.g. showcasing how the value of IRCC data is unlocked through data 	Greater understanding and appreciation for how data and analytics contribute to policy design, program delivery, and client satisfaction

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	transparent and timely reporting of results, service delivery	<p>partnerships and linkages)</p> <ul style="list-style-type: none"> Promotion of CDO value-added contributions (e.g. promoting the use of IRCC data at RDCs and P/Ts) 	
Data Culture	Champion data culture transformation by organizing data literacy events and engagement with intra- and inter-departmental stakeholders and partners	<ul style="list-style-type: none"> Key data literacy events within the Department Pro-active engagement with GC Data Community, and OGDs in alignment with data culture transformation across the GC 	Data culture of learning on how to access data sources and use data tools in collaboration with external partners is fostered within the Department
Data Development and Reporting			
Develop and Build a Reporting Products	Develop and build a reporting products required to support policy considerations and maintain the products on an ongoing basis.	<ul style="list-style-type: none"> Custom Reporting Products 	<p>A report to support policy and program considerations.</p> <p>A report to maintain the products on an ongoing basis.</p>
Data-Quality Report Management	Ensure the quality of the data regarding <u>initiative</u> and that associated reporting is in line with other reports detailing the nature of other specific cohorts of policy interest.	<ul style="list-style-type: none"> A gap analysis between what can and should be done. (Includes a highlight the loss of data quality and Interoperability) Data quality health scoring tools 	A gap analysis to highlight the cost to the department's data holdings.
Custom Ad-hoc Data Requests	Support custom ad-hoc data requests.	<ul style="list-style-type: none"> Custom Data Request 	A report to support policy and program considerations.
External Review and Approval	Review and approve all data and information for external release.	<ul style="list-style-type: none"> Reviewed Data for External Use Reviewed Information for External Use Approved Data for External Use Approved Information for External Use 	<p>An external release that was reviewed and approved.</p> <p>Data and Information intended for external release that is not approved.</p>

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Adherence of Privacy Standards for Reports	Ensure that privacy rules are respected and followed to be certain that the reports produced conform to GoC privacy standards.	<ul style="list-style-type: none"> Produced reports adhering to GoC Privacy Standards 	Reports adhering to the Government of Canada Privacy Standards.
Open Data Sharing	Post key datasets on IRCC's Open Data Portal.	<ul style="list-style-type: none"> Posted datasets in the Open Data Portal 	IRCC's datasets posted in the IRCC Open Data Portal.
Coordination with Provinces, Territories, and other External Partners	Coordinating with P/Ts and other external partners to share data efficiently and to ensure that all communication is clear and focused.	<ul style="list-style-type: none"> Approval of shared data 	Shared IRCC data is communicated clearly and focused.
Data Integration with Partners	Conduct data integration with Statistics Canada and Provincial/Territorial partner.	<ul style="list-style-type: none"> Approved data in accordance with Memorandum of Understanding agreements 	Data is integrated with partners as per MOU agreements.
CDOB Briefings to Senior Management	Provide briefings, orally and in writing, to senior IRCC management in order to track progress on CDOB related work, as well as to ensure CDOB works in a horizontal manner with other internal stakeholders.	<ul style="list-style-type: none"> Information Brief Notes Presentations Dashboards White Papers Reports 	Senior management is debriefed on CDOB progress of work and horizontal working relationships.
Other (Ad hoc)			
DGT		<ul style="list-style-type: none"> Specific presentation decks requested Data Policy and policy suite documents Data Strategy DRR DGT Audits WGs and Committees (internal and external) Tool design (e.g mapping of IRCC Strategies, Policies, etc. intersectionality) 	These are not all evergreen documents, though they might be revisited periodically

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		<ul style="list-style-type: none">• Response to IRCC documents (comments)• Foundational Documentation (including Data Standards and other relevant groups)• Data Stewardship Management and Process development	
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Note 1: This grid can be expanded to include more data-works.

Note 2: This appendix will be updated annually to align with the CDOB Plan of Work.

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Appendix 3: Develop Costing

A. Select the FTE Level based on sub-activities to completed.

Data Sub-Activities		
Level	Specific Role	Sub-Activity Role
EC-06	Lead	<ul style="list-style-type: none"> Provide oversight and alignment of products throughout IRCC and within CDOB Provide guidance and directives for initiatives and program of work prioritization Attend departmental and interdepartmental meetings (committees, working groups to deliver and present product results and findings) Thought leadership on new and emerging trends in data governance and support management in the identification of training requirements
EC-05	Develop	<p>EC-03 to EC-05</p> <ul style="list-style-type: none"> Development and design of tools (ex. Reporting tools), templates and design for policy <p>EC-03 to EC-04</p> <ul style="list-style-type: none"> Creation of indicators for assessment initiatives Defining, identifying, measuring, and monitoring data assessment dimensions <p>EC-03 to EC-04</p> <ul style="list-style-type: none"> Creation, modification, and maintenance of data monitoring, reporting dashboards, and reports. Creation, updates, and edits of data catalogues, business glossaries, data repositories, and lexicons.
EC-04	High-Level Support	
EC-03	General Support	
EC-02	Light Support	<p>EC-02</p> <ul style="list-style-type: none"> Supervised in the creation, modification, and maintenance of data monitoring, reporting dashboards, and reports. Supervised in the creation, updates, and edits of data catalogues, business glossaries, data repositories, and lexicons. Logistical support for working groups and research activities to support the unit.
<p>Providing Subject Matter Expert (SME) on Data Input:</p>		<ul style="list-style-type: none"> High Demand of input beyond the Sector or Department (EC-06 Minimum) Low Demand of input beyond the Sector or Department (EC-05 Minimum) High Demand of input between Sector and within the Sector (EC-04 to EC-06 Range) Low Demand of input within the Sector (EC-03 to EC-05 Range)

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B. Determine the number of FTEs required to complete the data-work within the required time.

- I. Based on the Data-work identified, how many FTEs would be required to do the work in:
 - i. Less than 6 months;
 - ii. 6 to 12 months;
 - iii. 12 to 24 months;
 - iv. 24 to 36 months;
 - v. 36 to 48 months;
 - vi. 48 to 60 months;
 - vii. Ongoing.
- II. Here is a grid to assist:

Data-work	Level of FTE	Number of Months
TBD	Options (EC-02 to EC-06)	Options (<6 months to Ongoing)
TBD	Options (EC-02 to EC-06)	Options (<6 months to Ongoing)
TBD	Options (EC-02 to EC-06)	Options (<6 months to Ongoing)

C. Estimate how much time an FTE would require on a sub-activity based on the level of prioritization. *(This is to determine whether or not more FTEs could speed-up the data-work, if possible)*

- I. **Note:** Not all data-work can be sped up due to processes beyond the control of the FTE such as large external and internal consultations with conflicting positions or large data development work.

D. Visualization of data-work for CDOB. (OPTIONAL) Plot the prioritization, number of months to complete the sub-activity with outputs, and the number of FTEs required to complete the sub-activities in the [Data-works Costing Visualization Table and Graph](#).

- I. X-Axis = # of Months to complete the task (1 to 60 months; 61 = Ongoing)
- II. Y-Axis = Priorities (4-Must; 3-Should; 2-Could; 1-Won't)
- III. Bubble Size = # of FTEs

E. Summarize the data-work costing in a sentence. (E.g. "Data-work Activity" will require "#" of FTEs (Levels) for "X" months; "Data-work Sub-Activity" will require "#" of FTEs (Levels) for "X" months.) The summary sentences will require the following components:

- I. Data-work Activity and Sub-Activities;
- II. Number and Level of FTEs for Data-work Activity and Sub-Activities (Note: Priorities may increase the number of FTEs or the level); and
- III. The estimated time required for the data-work to completed.

E.g. Business Glossary Review and Update will require 2 FTEs (1 EC-05 and 1 EC-04) for 12 months.

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Update Tracker

Name	Date	Comments
Peter Pryce	Wednesday, April 13, 2022	Added Update Tracker and refined the final product.

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