

# Assessment and Analysis of BFO Consular Data

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# 1 Project Overview and Statement

Within Borealian Foreign Office (BFO), Consular Affairs (CA) has a software application (SPACE, produced by OneEarth) that tracks consular activity statistics and notes, with a focus on case management. Broadly speaking, SPACE is used to enable consulates to provide assistance to their consular clients while at the same time helping to identify where the workload stresses are and to provide basic statistics for requests from journalists and others.

While originally designed for client support, there is a wealth of information in SPACE databases that could potentially be utilized to the advantage of BFO. More specifically, PIMENTO (a module of SPACE), tracks the time required by employees to perform consular tasks abroad. This data stretches back over approximately twenty years. It is currently used to determine the effectiveness of mission consular programs, identify weaknesses to be resolved through HR, training and other solutions, and is used to evaluate the need for resources in missions. It is in fact the pivotal element when determining whether to staff, delete, or create positions. The software is scheduled to be updated/replaced in late 2022, and BFO are looking for an opportunity to determine if the current system meets their needs, and what changes should be implemented to improve its effectiveness.

## 1.1 Report Objectives

In order to support decisions relating to consular resource allocation and effectiveness more broadly, the SPACE data must, at a minimum, have a sufficiently high level of validity to allow reliable conclusions to be drawn from the data. Related to this, CA would like to know, and this report will consider:

- to what extent the reliability and accuracy of the current dataset can be verified, especially given that it is input by users without extensive checks possible, and
- if, given its current level of validity, the existing dataset can be reasonably used for the purposes and types of decision making described above.

The results of this analysis are described in detail in Section 3.

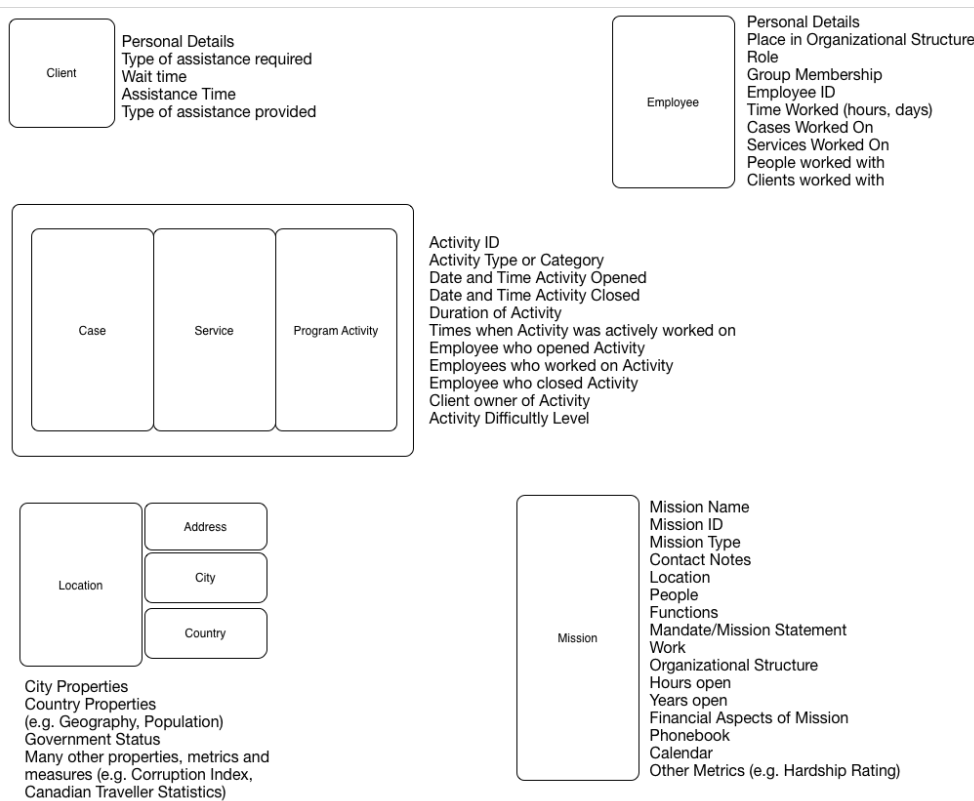
Apart from issues of data validity, data can only be used to support particular types of decisions if it can be suitably connected to these decisions. Thus CA would also like to know if the type of data currently being collected can be reasonably and effectively used for the desired decision making purposes. To answer this question, we further assessed the existing data to determine the ways in which it could be used to meet CA's requirements to monitor the delivery of the consular program. The results of this assessment are described in detail in Section 4.

Finally, CA would like to know what additional data (if any) would be required to improve their decision making capabilities, and minimize inaccuracies that may have been identified in their data collection. To answer this question we have suggested modifications to CA's data collection strategy, and recommended ways to improve their analysis using existing and other tools. These recommendations are provided at the end of each of the main sections of the report.

## 1.2 Key Points and Recommendations

Although the report will go into further depth on all of these points, key recommendations coming out of the examination of the consular data are as follows:

- Due to the nature of consular work (in particular, the variability of the work from mission to mission and month to month) it is inherently difficult to determine the reliability and validity of the mission level data using only measures internal to the data. It may be possible, however, to provide some partial measures which can be combined with external information to provide some ability to judge the reliability of mission data in particular instances. For further discussion, see Section 3.
- As illustrated by the time series provided in Section 3 and further discussed in Section 4, this variability across missions must also be properly taken into account during the calculation of any performance metrics, with missions only compared to other demonstrably similar missions (e.g. using techniques like clustering). Otherwise, these metrics will not accurately reflect mission performance.
- The presence of separately entered daily and monthly work logs has some provisional advantage with respect to determining the facility with which missions are using available data entry systems. For further discussion, see Appendix B. However, this advantage is entirely outweighed by the data interpretation challenges that results from this data collection system. Thus it is recommended that the daily and monthly logs be synchronized.
- In several cases the consular data that is collected (or can be derived from other data that is collected) is partial, or incomplete (see Tables 1 to 3 for more information on this). In such cases, it may be tempting to use this incomplete data as if it were comprehensive, but doing this will most likely yield false conclusions. Thus, despite its availability, partial data should not be used.
- In effect, the existence of this partial data results in the illusion of having more data than is actually available. A good goal for future system redesign is to make changes such that data be collected in a comprehensive manner, so that it can be properly used for decision support. As it stands, it is difficult to calculate valid performance metrics with the available data.
- In terms of future data collection, our most important recommendation is to begin to track the start and end times (and by extension duration) of case and service activities, as well as the employees who are working on a given case or service at any point in time. Without this data, a variety of measures that are essential for determining data validity, resource sufficiency and mission efficiency cannot be calculated. For further discussion, see Sections 3 and 4.
- If systems are, first, redesigned to fully capture the required data and then combined with existing external data, there is the potential to calculate a number of useful mission-level metrics, as well as, more generally, a mission snap-shot that can provide an at-a-glance summary of relevant mission level information. Both of these system outputs could then be used to facilitate decision making relating to mission management. For further discussion, see Section 4.



**Figure 1:** Key objects in the consular network and some properties of these objects.

## 2 Description of the Consular System and Data

In order to assess the data provided by the SPACE system, both in terms of its validity and its decision support suitability, it was necessary to develop a broad understanding of the consular system itself. This understanding was built first through an examination of the structure of the supplied dataset, and then, following this, through interviews with CA.

### 2.1 Consular System Description

This review resulted in the development of a picture of the consular system, including key objects and relevant object properties. The available data was then compared to this picture in order to understand how comprehensive the dataset was, as well as in order to identify areas which might be vulnerable to data issues and areas where additional data collection might usefully augment the current data collection strategy.

Figure 1 depicts the key objects and some of the objects properties that were identified. For a more detailed list of relevant consular system objects and properties, see Tables 1 to 3.

### 2.2 Data Set Description

Our current understanding of the SPACE dataset suggests that the data of primary interest for consular management is contained in four of the PIMENTO tables – specifically, those which provide

<b>Object Properties</b>	<b>Data Availability</b>
Functions	Fully Available
Types of Services Provided	Fully Available
Types of Cases Provided	Fully Available
Types of Consular Programs	Fully Available
<b>Connected Objects</b>	
Missions	

(a) Consular Network

<b>Object Properties</b>	<b>Data Availability</b>
[Mission ID]	Auto-generate
Mission Name	Fully Available
Mission Type	Fully Available
Contact Notes	Fully Available
Mission Profile	Fully Available
Functions	Fully Available
Mandate/Mission Statement	Potentially Available
Hours Open	Fully Available
Years Open	Derivable
Financial Aspects of Mission	Potentially Available
<b>Connected Objects</b>	
Building	
City	
Country	
Mission Employees	
Mission Clients	
Local Service Providers	
Contacts	
Bureaucratic Liasons	
Mission Work	
Organizational Structure	

(b) Missions

**Table 1:** Further details of relevant objects and object properties in the consular network – I.

logs of mission activities (cases, services and programs) as well as time spent on these mission activities, for each day and also for each month. Within these tables, data is available across a time span of 10 years, from 2011 – 2020.

The system was upgraded in 2016. During the upgrade, the categories relating to cases and services were changed, resulting in a break in the dataset at this time. Discussions with CA also confirmed that, as result of the upgrade, data accuracy should be highest from mid – 2016 onwards. For this report, a subset of data from these four tables was reviewed in depth. Specifically, the focus of this report is on an analysis of case, service and program related data collected between July 2016 and December 2020.

Tables 1 to 3 note which key consular object properties either correspond to, or can be derived from, one or more of the fields in these four PIMENTO tables. The possible availability of additional data will be discussed further in Section 4.

Object Properties	Data Availability
Time Worked	Partially Available
Work Difficulty Assessment	Possible Metric
Types of Services Provided by Mission	Partially Available
Types of Cases Provided By Mission	Partially Available
Types of Programs Worked on by Mission	Partially Available
Tally of Cases of Each Type Opened on a Given Date	Fully Available
Tally of Services of Each Type Provided on a Given Date	Fully Available
Hours Worked on Program Activities of a Given Type on a Given Date	Fully Available
Connected Objects	
Service	
Case	
Program Activity	

(a) Mission Work

Object Properties	Data Availability
Reporting/Responsibility Structure	Potentially Available
(Roles)	Potentially Available
Role Title	Potentially Available
Role Responsibilities	Potentially Available
Role Activities	Potentially Available
Reports to	Potentially Available
Supervises	Potentially Available
(Groups)	Potentially Available
Group Title	Potentially Available

(b) Organizational Structure

Object Properties	Data Availability
Contact Details	Potentially Available
Place in Organizational Structure	Potentially Available
Role	Potentially Available
Group Membership	Potentially Available
Employee ID	Potentially Available
Time Worked (hours, days)	Potentially Available
Cases Worked On	Partially Available
Services Worked On	Partially Available
Local Employees Worked With	Not Available
Clients Worked With	Partially Available
Work Experience	Potentially Available

(c) Mission Employees

Object Properties	Data Availability
[Client ID]	Auto-generate
Contact Information	Potentially Available
Reason for Contacting Mission	Not Currently Available
Wait Time (before first seeing someone)	Not Currently Available
Duration of Time (before conclusions of interaction with mission)	Not Currently Available
Type of Assistance Provided	Not Currently Available
Client Satisfaction (with experience and assistance provided)	Not Currently Available

(d) Mission Clients

Table 2: Further details of relevant objects and object properties in the consular network – II.

Object Properties	Data Availability
Mission Employee Worked With	Not Currently Available
Dates	Not Currently Available
Type of Assistance Provided	Not Currently Available

(a) Service Providers

Object Properties	Data Availability
(Building + City)	Potentially Available
Address	Potentially Available
Building Status	Potentially Available
Occupancy Type	Potentially Available
Ease with which people can get to building	Potentially Available
Security	Potentially Available
(Country)	Potentially Available
Geography	Potentially Available
Government	Potentially Available
Visa Requirements	Potentially Available
Many other properties, metrics and measures	Potentially Available

(b) Location

Object Properties	Data Availability
Case ID	Auto-generate
Case Type	Potentially Available
Date and Time Case Opened	Potentially Available
Date and Time Case Closed	Not Currently Available
Duration of Case	Not Currently Available
Active Work Times	Not Currently Available
People who have Worked on Case	Not Currently Available
Client Owner of Case	Not Currently Available
Case Difficulty Level	Possible Metric

(c) Cases

Object Properties	Data Availability
Service Provision ID	Auto-generate
Service Type	Not Currently Available
Duration of Service Provision	Not Currently Available
Date of Service Provision	Not Currently Available
Employees who Provided Service	Not Currently Available
Local Service People who Provided Service	Not Currently Available
Service Difficulty Level	Possible Metric
Connected with Case	Not Currently Available
Client Served	Not Currently Available

(d) Services (Instances)

Object Properties	Data Availability
Program Type	Fully Available
Hours Worked	Fully Available
Employees Involved	Fully Available
Activity Objective	Potentially Available
Date Objective Achieved	Not Currently Available

(e) Program Activities

**Table 3:** Further details of relevant objects and object properties in the consular network – III.