
Google Apps Script

— GSA-IT Tech Talks —
April 20, 2021

By Eric Breece and Rolo Sierra
eric.breece@gsa.gov and rolo.sierra@gsa.gov

Introduction

Google Apps Script is a scripting platform that allows users to build automated tasks across Google products and third party services. It is a **FREE** cloud based application that does not require installation.

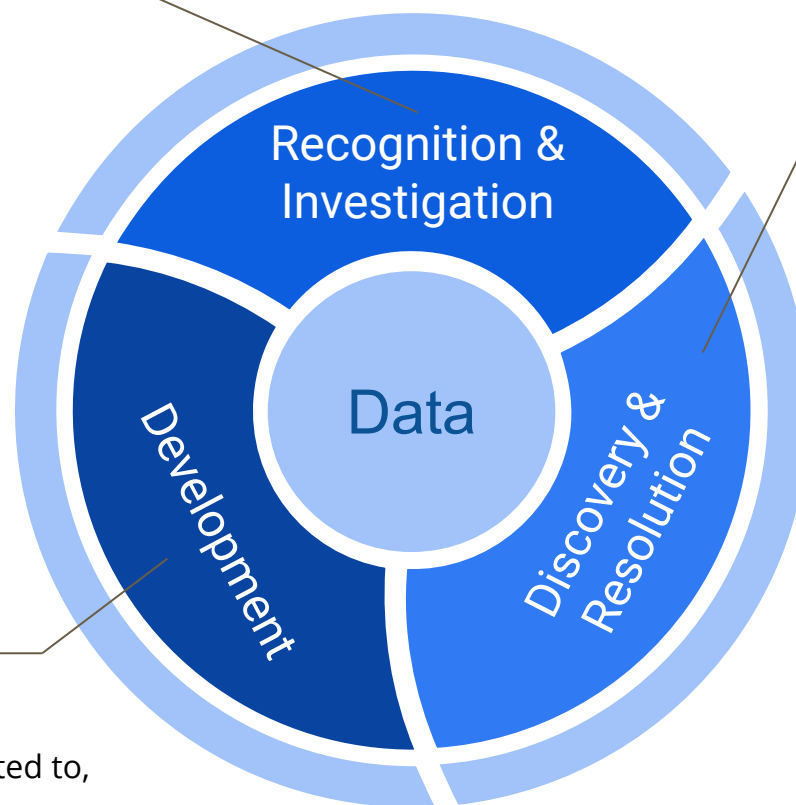
Key Benefits

Analysis

Google Scripts allow users to easily combine data from several sources and perform a wide variety of functions. In just a matter of seconds a large amount of data can be moved, explored, recalculated and/or re-organized.

Problem Solving

Many utilities and functions are available to expand the native functionality of many applications. Through the use of simple coding, a user is able to better analyze the information and easily arrive to the root cause of data irregularities. Also, the users are able to place these data scrubbing functions on automated schedules to fix the issues and/or receive notifications.



Technology

Google Scripts' versatility expands operational efficiency. Some of the capabilities include, but are not limited to, data interface/management, files permissions monitoring, unauthorized users alerts, interfacing with Google workspace applications, email notifications, and create custom HTML interfaces.

Google Apps Script Site

<https://developers.google.com/apps-script/>

Core Capabilities

Build

- Spreadsheets tailored for users
- Mail-Merge and Doc-Merge type work
- Interactive, Workflowed Websites
- Lightweight, Spreadsheet based analysis platforms



Transform

- Documents generated from spreadsheet lines
- Data visualization
- SQL type joins, splits, filters, and other operations



Deliver

- Auto-Generated Emails
- Documents created and users/editors modified
- Large spreadsheets filtered and copied/moved from static or dynamic locations to static or dynamic locations

Process Improvement

Google Apps Script have saved GSA thousands of hours through several automations, resulting in more reliable and timely data. Google Apps Script have also provided support to key organizational initiatives, where we have been able to deliver accurate and top quality solutions.

Limitations

- Does not support large datasets
- Data processing intensity and job time length is limited
- Less reliable than other platforms: random server disconnections cause 1 to 5% of data processing jobs to fail
- Complex custom functions sometimes fail during file load
- Cannot push/pull data to/from file servers, (although internal apps can push to Google)
- Technology exists to pull from databases Business Intelligence/Data2Decisions (BI/D2D) via ODBC or JDBC, but approval/funding/infrastructure would be needed, so not at present

Advantages

- Custom functions allow complex data processing not otherwise possible with native spreadsheet functions
- Scripts can produce HTML interfaces, which offer almost unlimited possibilities, although they are difficult to build
- Users only have to Authorize a script once per file, but the corresponding VBA authorization is locked and must be reauthorized every time a file is opened
- Google Triggers are available for use, allowing autonomous and overnight processing, while the Windows Task Scheduler is disabled on workstations and VDI

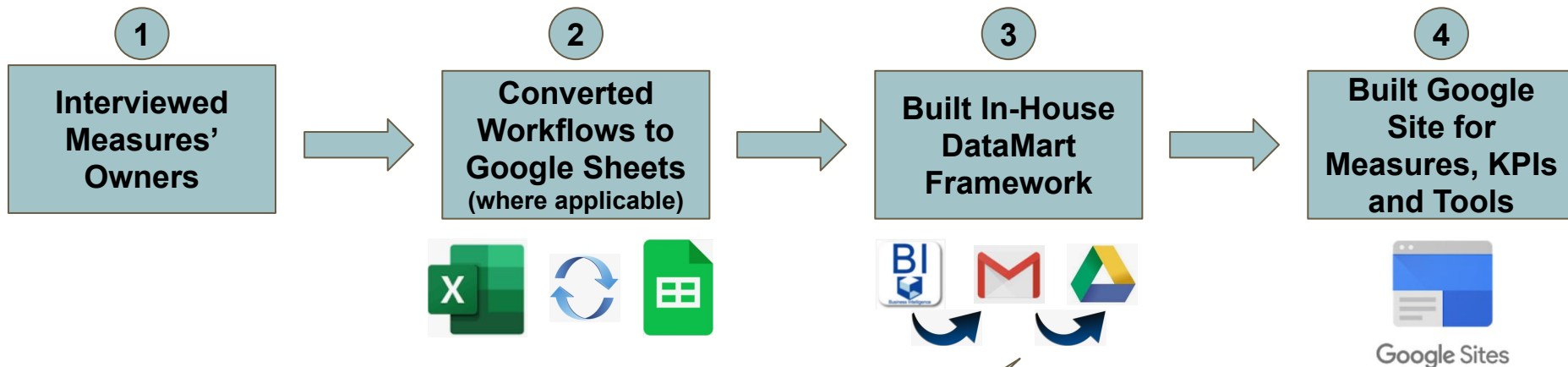
Use Case - Example 1

Project: Measures and KPI Dashboard

Description: Leadership requested a one-stop hub where they could access the division's measures data

Development Timeframe: Approximately 8 weeks

Solution: Built a Google site supported by Google Sheets, which is updated daily by Google scripts



DataMart Framework

- Built “Agents” in BI that send daily data attachments to Group Inbox
- Script pulls those attachments and converts them to Google Sheets
- Scripts aggregate the information or move the data to other locations

Measures and Tools Google Site

- Built script that connects the Google Sheets data to the Google Site

Questions?