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Decoding the Ancients

better practices and processes using R

R Exchange - Wellington
May 27, 2022

Introduction

- **Logan Ashmore** – Senior Data Analyst, Data Collection and Management (Data & Evidence Secondment)

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Presentation overview

- Improvements MfE is making in data collection and management
- Challenges to implementing change
- Contaminated Site Remediation Fund (CSRF) Example

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Desired improvements

- Data management and sharing
- Analysis, research, and reporting
- Reproducibility and transparency

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Issues

- “Data” isn’t always data (if any exists)
- Building the plane as we fly
- Short attention spans
- Inherited products

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Who are the Ancients?

- anyone no longer working at the organisation
- but we still use their product

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What are we doing about it?

- Upskilling in R (MfE)
- Converting old information sources to proper datasets
- Migrating to the cloud
- Building apps for teams to interact with the data
- Committing to Git

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What are we doing about it?

Still growing but have some firm ground rules:

- Always use Git
- Codecommit for internal projects, GitHub for external partnering/sharing
- Shiny Server for internal Apps, IO for public
- Repos are for code, S3 and RDS are for data
- No personal credential files in code or repo

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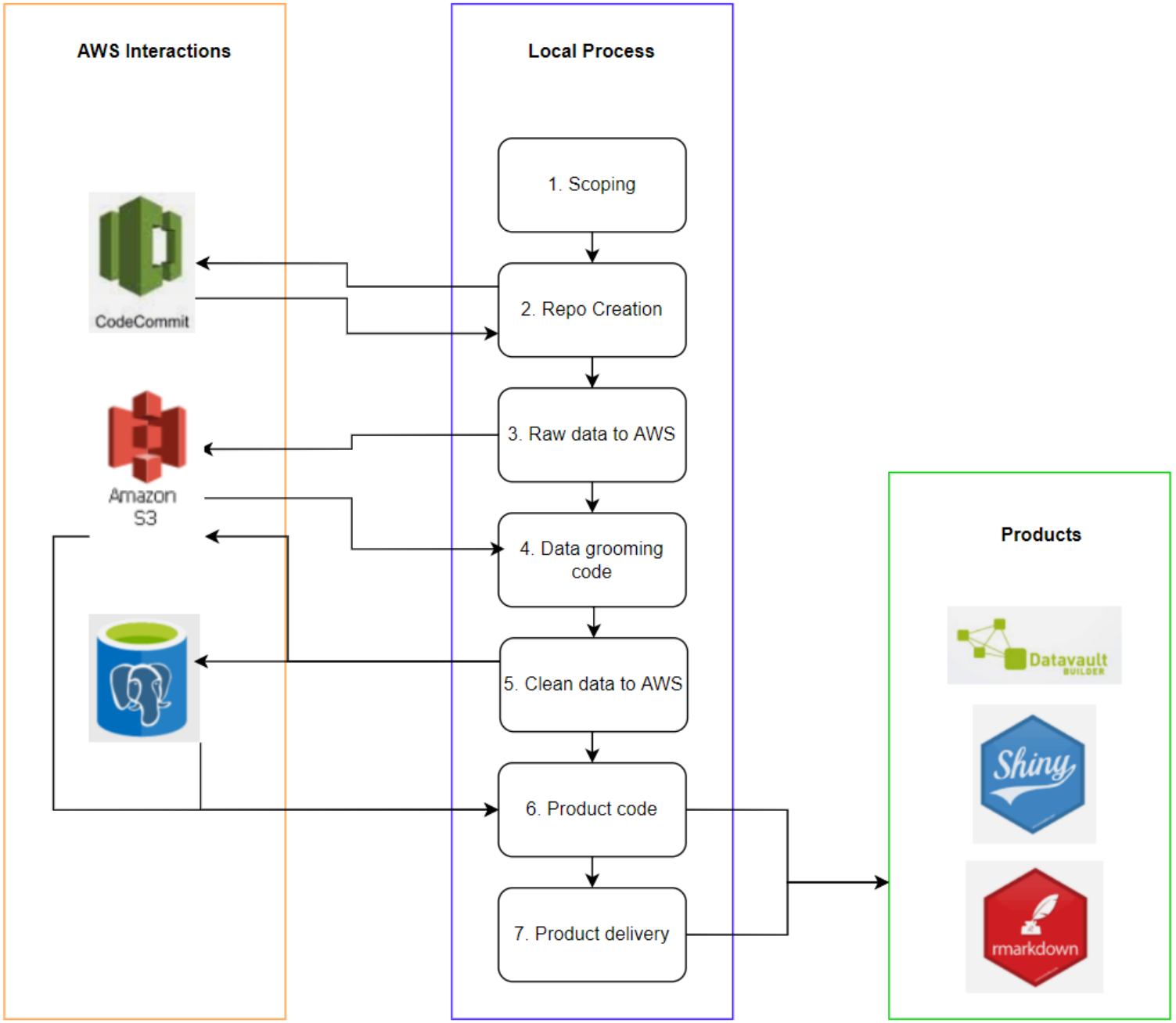
Normal project progression



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The CSRF Program

- 10 contaminated sites receive government funding every year for remediation
- Sites prioritised by highest risk
- MfE content
- Envirolink content

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CSRF Tool

- Procured project, 2011
  - Last meaningful update 2013
- Macro heavy excel 2007 workbook
  - Uses Monte Carlo simulations to score and rank risks
- Data entry, storage, reporting, and simulation all in one
  - more than one version

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CSRF Challenges

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CSRF Challenges

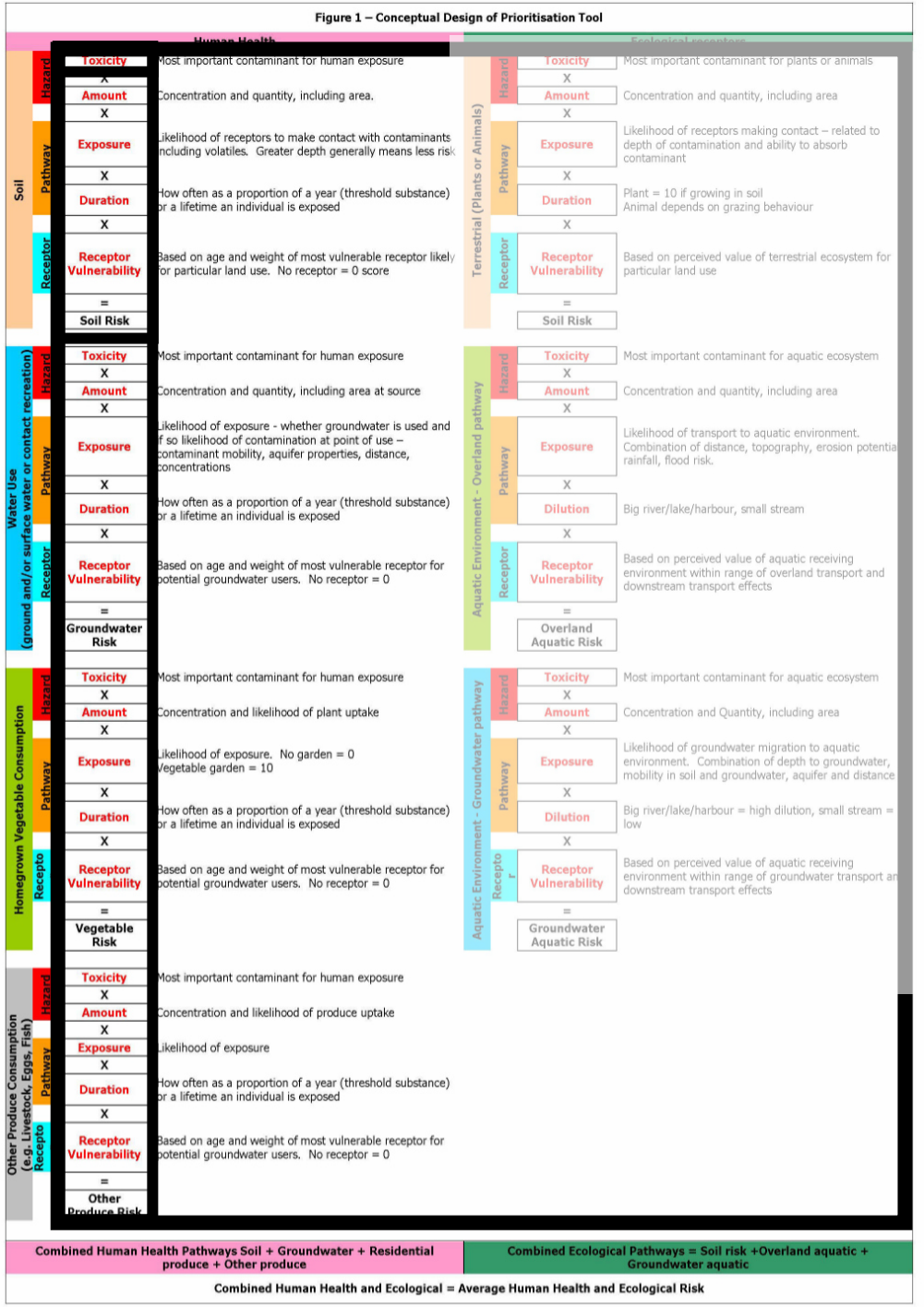
CSRF Model

Modal risk (1-10)

Product of risks /1000 (Exposure)

Sum of Exposures (indicator score)

Average of Indicators (overall score)



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Shiny App

- Replicated style and language of the spreadsheets
  - ease transition for users
- Leveraged Apply family and custom functions to generate repetitive UI elements and reactives
- Created additional data set to store historic edits

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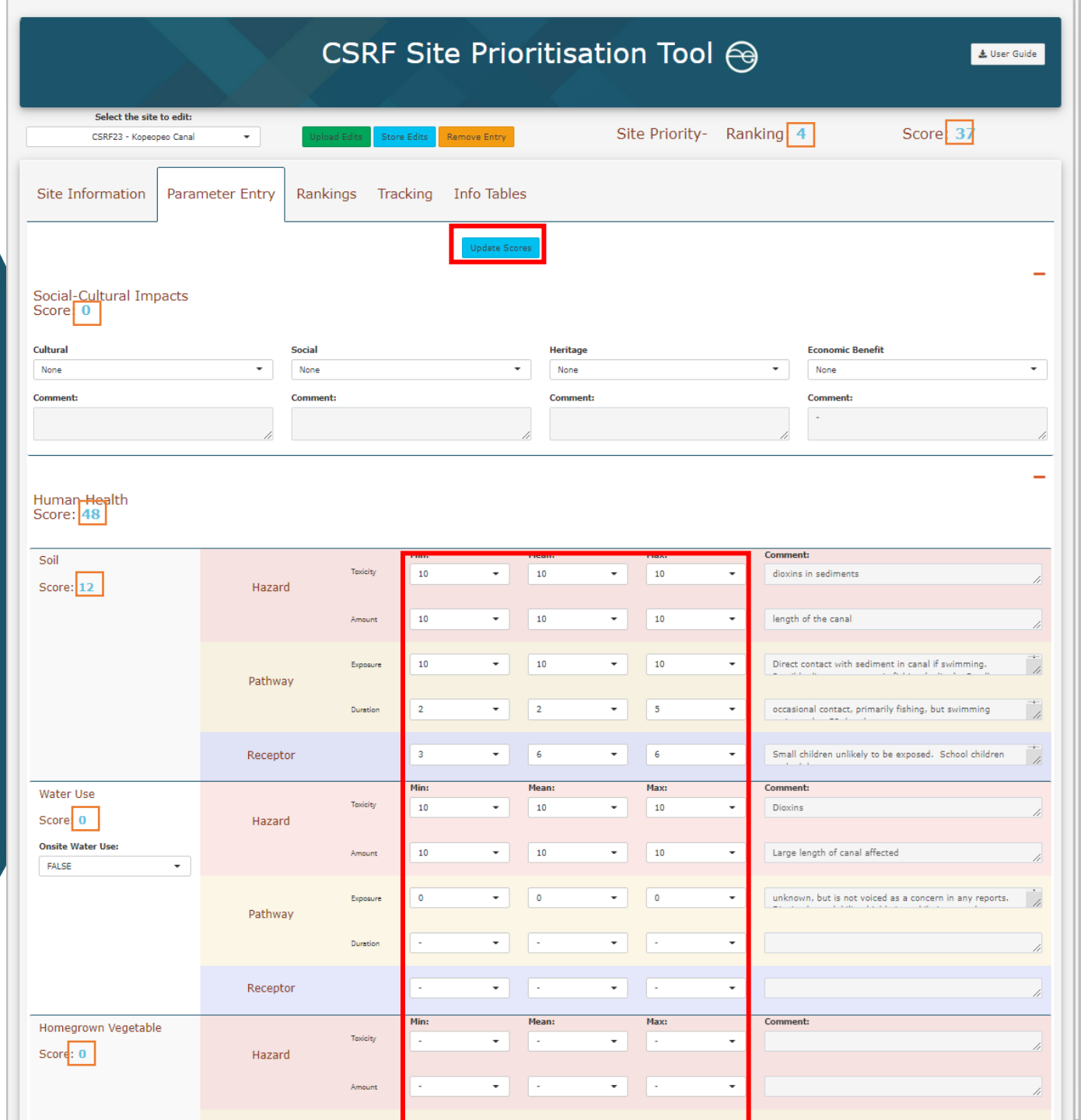
Shiny App



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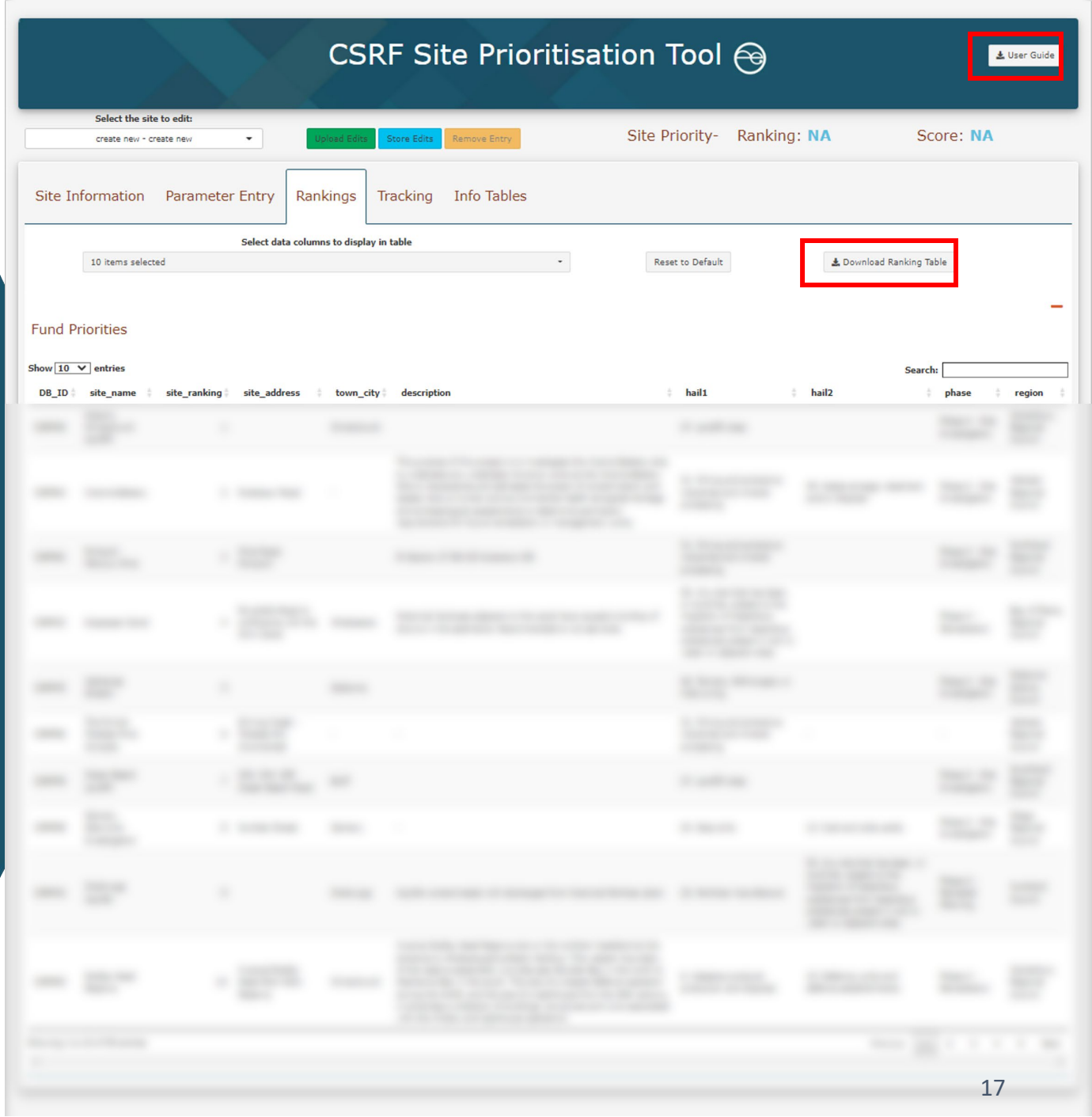
Shiny App



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User Guide

- Produced using Rmarkdown
- Word output, reference MfE template
- Time cost upfront,
  - but easier to update in future
  - Cleaning/processing scripts, app, and guide all in one repo

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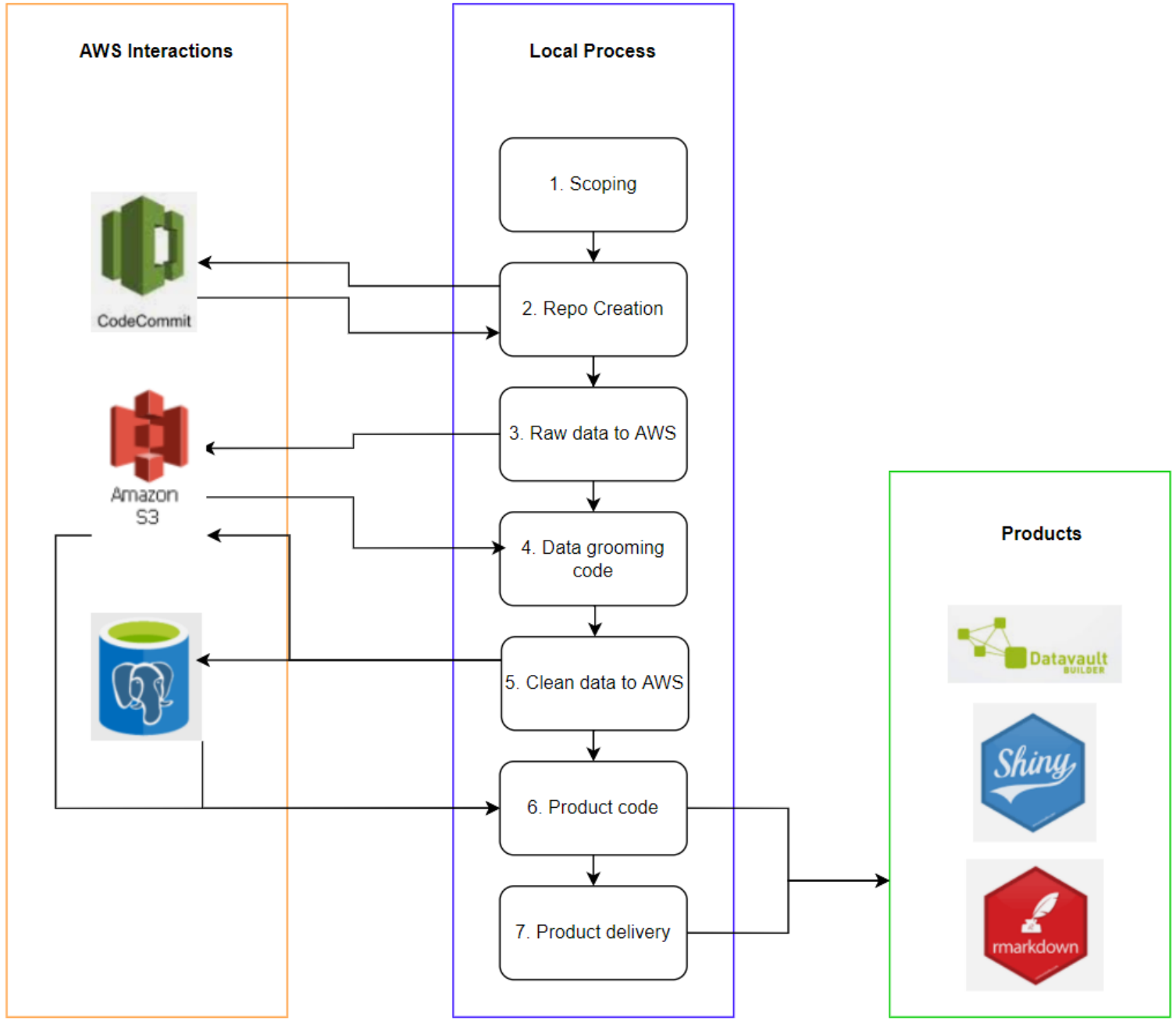
User Guide



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Questions?

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