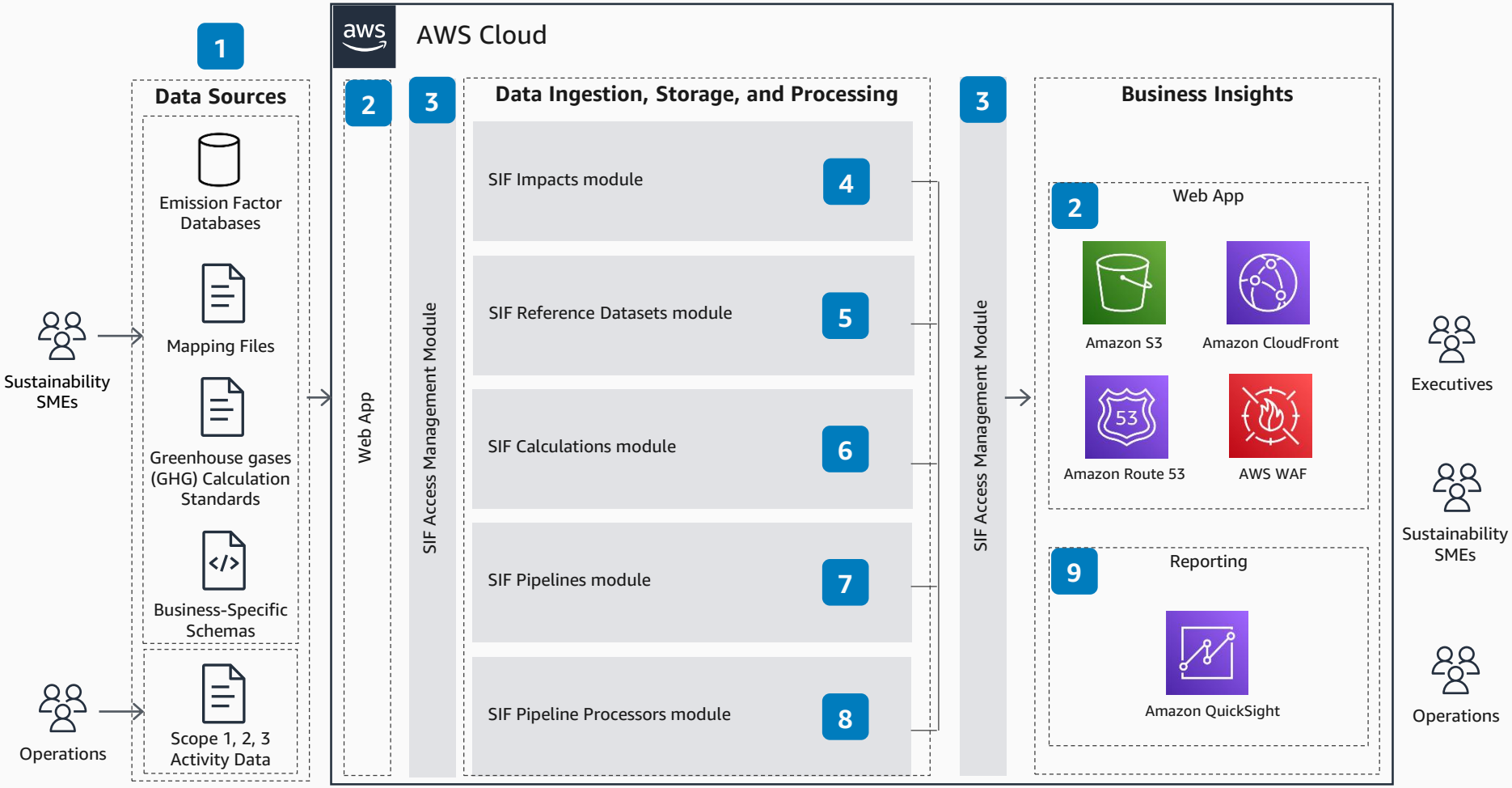
Guidance for Carbon Accounting on AWS

Built on the *Guidance for Sustainability Insights Framework (SIF) on AWS*



1. Sustainability subject matter experts (SMEs) and operations personnel submit their respective data sources through a web application built on top of the **Sustainability Insights Framework** (SIF) on AWS.

2. **Amazon Route 53**, the Domain Name System (DNS) service, enables front-end clients to resolve the website hostname to **Amazon CloudFront**, the AWS content delivery network. **CloudFront** routes the web requests to the origin servers and caches the static content and assets served from **Amazon Simple Storage Service** (Amazon S3) and origin servers. It secures the application traffic using **AWS WAF** (a web application firewall) to protect the application against common exploits and bots. This web app exposes the access patterns shown in steps 4-9.

3. An administrator uses the **SIF Access Management** module to configure roles such as sustainability experts, auditors, executives, and operations managers. For example, an auditor could have read-only access to all calculation logs, and an operations manager could have access to submit new activity information (step 7). The **SIF Access Management** module controls fine-grained permissions to resources in other SIF modules.

4. The sustainability SME selects the emission factors that are most representative of their business activities and loads them into the **SIF Impacts** module. Emission factors in this module can be applied in the carbon footprint calculations of a pipeline.

5. A user can define reference data (called "mappings") in the **SIF Reference Datasets** module. This data can then be used in calculations. For example: mapping a location's US postal code to the corresponding electrical grid region when calculating a carbon footprint.

6. The sustainability SME defines the calculations based on the methodology required for reporting. The **SIF Calculations** module allows users to define reusable formulas for carbon accounting of scopes 1, 2, and 3 business activities (such as the fuel consumption of vehicles).

7. Users create pipelines that specify the data source formats and the calculations to run on those data sources in the **SIF Pipelines** module. For example, the sustainability SME defines a pipeline to calculate the carbon footprint of fuel consumption from truck transportation using a standardized form that operations managers complete.

8. Data from business operations is uploaded and transformed into carbon footprint data using the **SIF Pipelines Processors** module. Once the data has been processed through the pipelines, dashboards or reports can be configured for carbon emissions tracking and operations monitoring.

9. The user can configure dashboards or reports to track scopes 1, 2, and 3 such as emissions and other metrics required for climate disclosures. The user can also use the dashboards to identify carbon hotspots, review progress towards climate targets, and draw insights for decarbonization planning.

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AWS Reference Architecture