Azure Databricks – Democratizing Data with AI/BI Genie

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Bio

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MVP Microsoft® Most Valuable Professional

My experiences includes:

- Avanade
- CAE
- Air Canada

databricks PARTNER PROGRAM SOLUTIONS ARCHITECT CHAMPION

Expected Audience and Presentation Structure

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- This session, we will cover:
  - Recap of AI/BI Genie's core capabilities and how it works.
  - Customization techniques to tailor Genie's response to deliver consistent and trustworthy insights.
  - Discuss the user and admin workflows.
  - Apply the best practices and techniques to create our own Genie.

- Fundamental knowledge: Basic SQL and Databricks. Experienced with AI/BI Genie would be beneficial but not required.

Quick Recap: How Genie works and What we built

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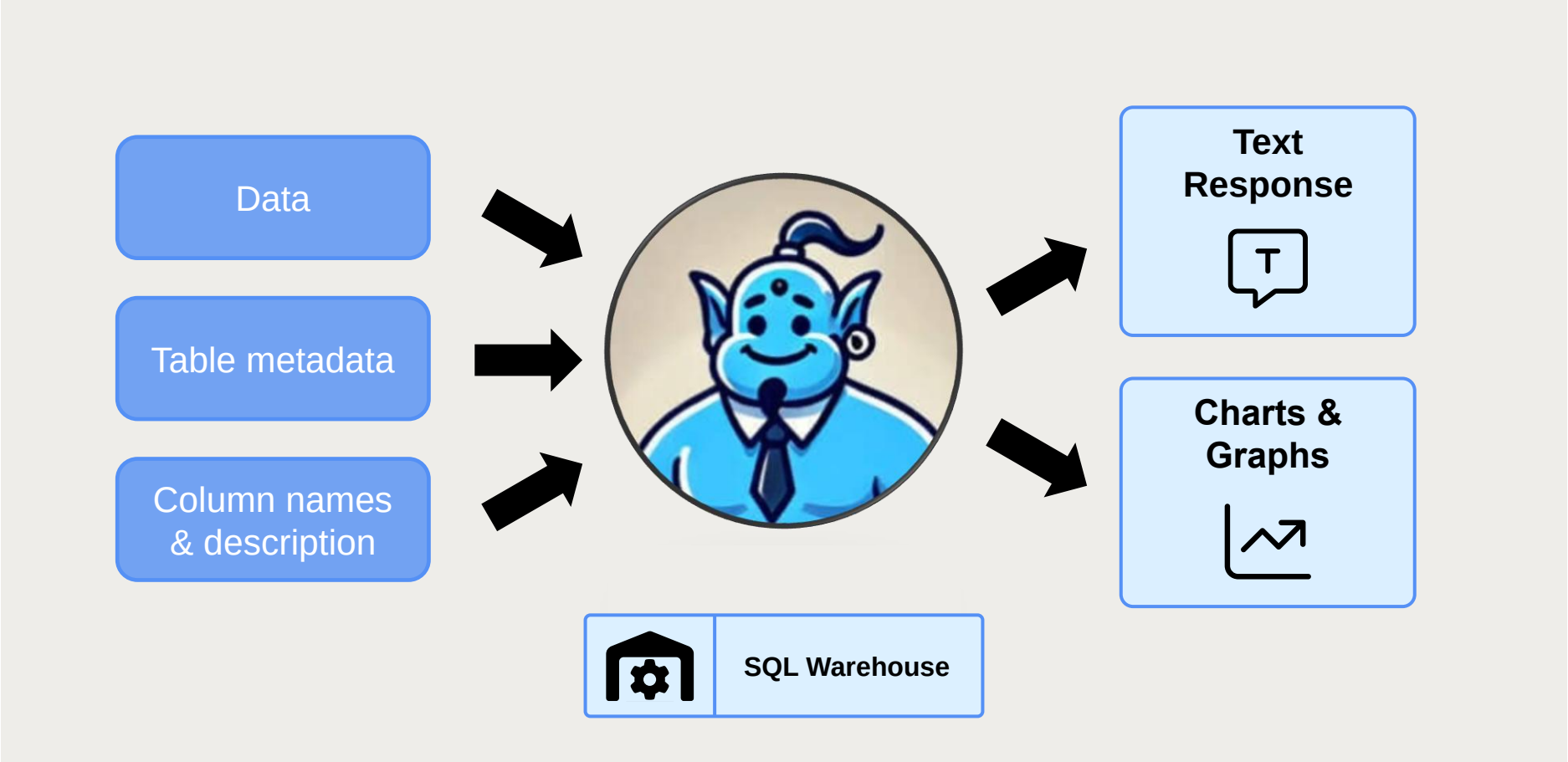

Image Credit: https://www.databricks.com/blog/onboarding-your-new-aibi-genie

Enabling Self Servicing: Six steps to deliver Accurate, Consistent, and Business-Aware Insights

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Metadata | Value Dictionaries | Custom Instructions | Trusted Assets | Benchmarking | Feedback & Monitoring

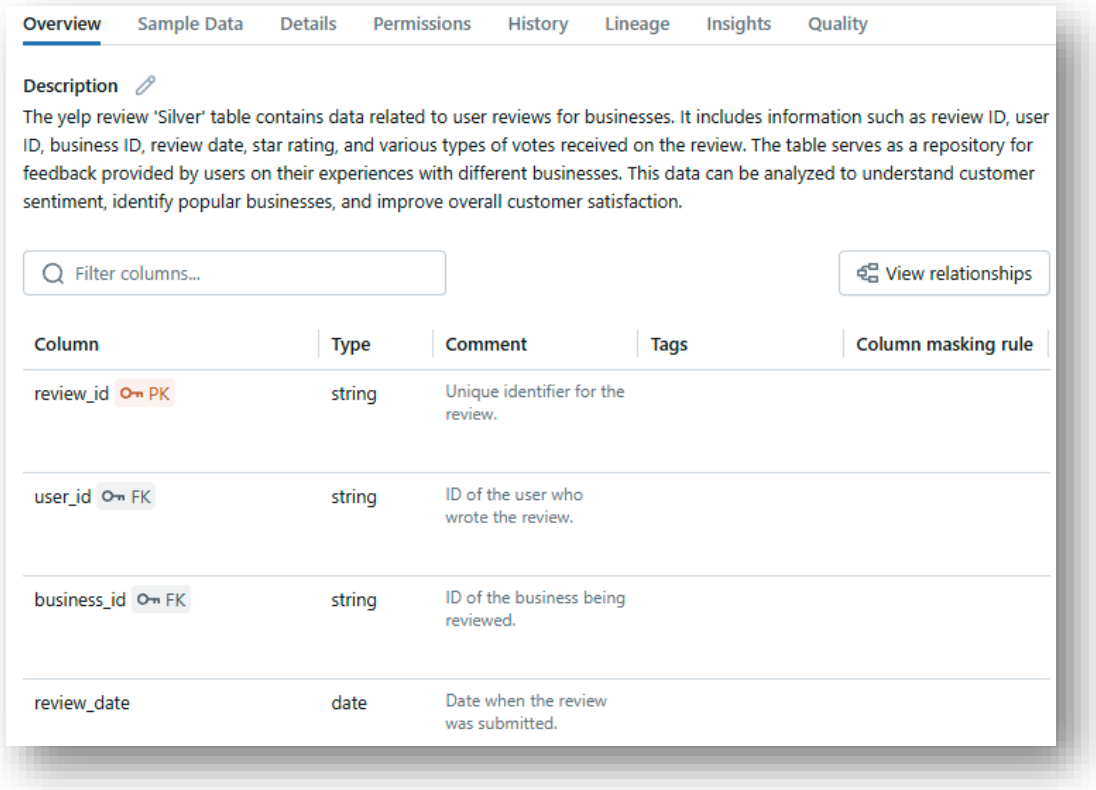
Metadata: Help Genie Understand How Your Data Connects

Purpose: Improve Genie's generate accurate queries by clarifying how data relates through business-friendly metadata.

How: Leverage table description, column naming standards, column comments and table relationships (PK/FK) hints.

Tips

- ✓ Use descriptive, consistent column names (e.g. user_id, product_id, review_date).
- ✓ Add clear, business-friendly column comments. (e.g. Date when the review was submitted)
- ✓ Define PK/FK relationships. They serve as hints/guidance and not enforcement.



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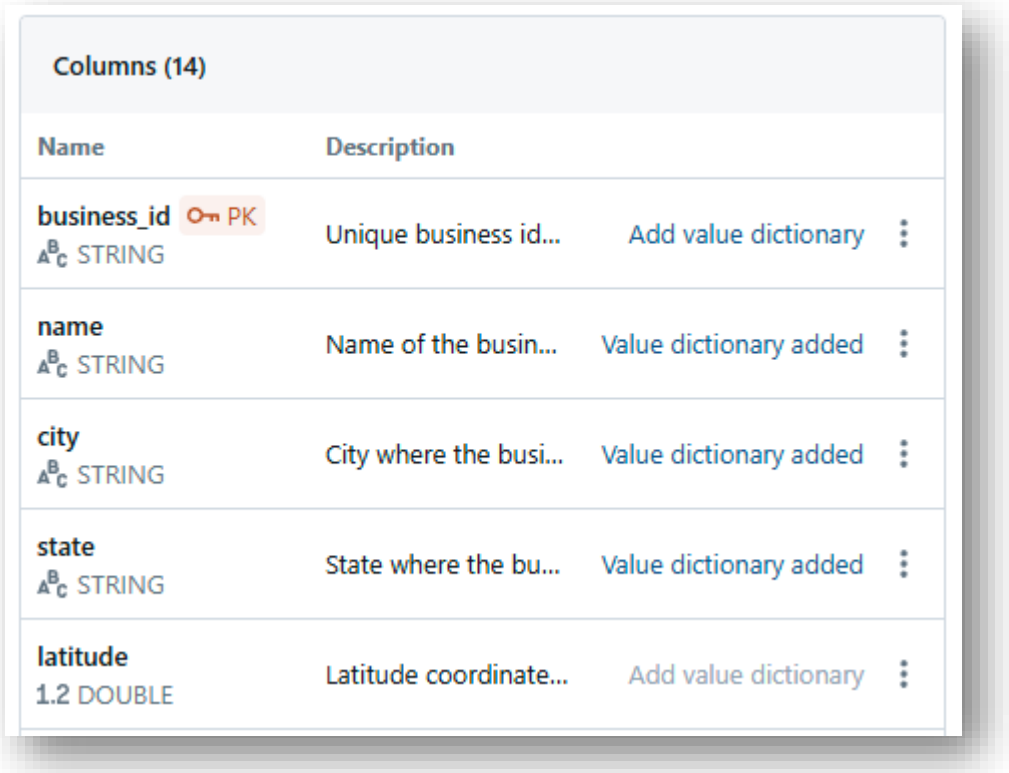
Value Dictionaries: Help Genie Interpret Business Terms Accurately

Purpose: Map domain-specific terms to specific column values in string fields so Genie can understand (e.g. customer_segment).

How: Genie automatically creates and manages list of values for eligible string columns.

Tips

- ✓ Enable dictionaries only for meaningful, well-maintained values. Refresh them regularly to keep value sets up to date.
  - ⚠️ Dictionaries are managed by Genie. It cannot be edit it.
- ✓ For non-string columns, use Custom Instructions.
- ✓ Stay within limit of value dictionaries: **Public Preview**
  - 30 columns/Genie, 1024 distinct values, 127 max char.



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Metadata | Value Dictionaries | **Custom Instructions** | Trusted Assets | Benchmarking | Feedback & Monitoring

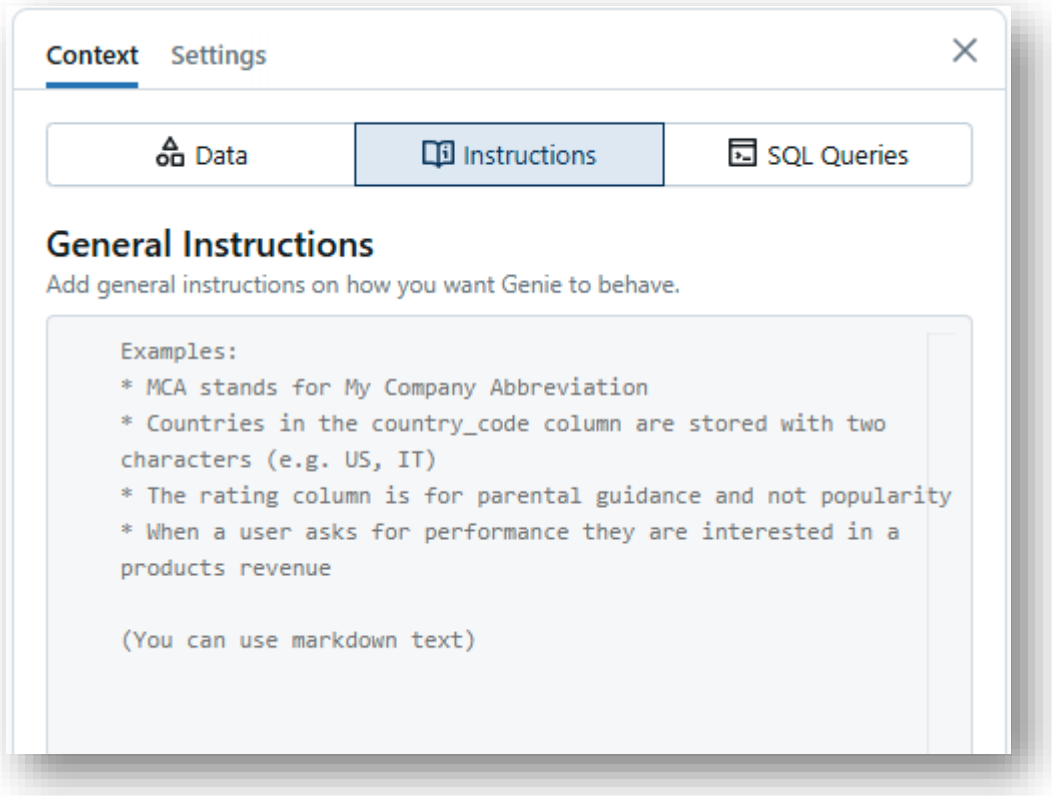
Custom Instructions: Guide Genie's Behaviour with Context, Tone and Examples.

Purpose: Shape Genie's response by defining how it should behave, what to prioritize, how to response and what to avoid.

How: Use Markdown to define Genie's behavior in a structured way.

Tips

- ✓ Organize using Markdown formatting: Heading, bullet lists.
- ✓ Be specific and concise – less is more when communicating intent (e.g. the fiscal year starts on May).
- ✓ Tailor language and expectations to your audience.
- ✓ Define any common terms and include reporting standards.



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Metadata	Value Dictionaries	Custom Instructions	**Trusted Assets**	Benchmarking	Feedback & Monitoring

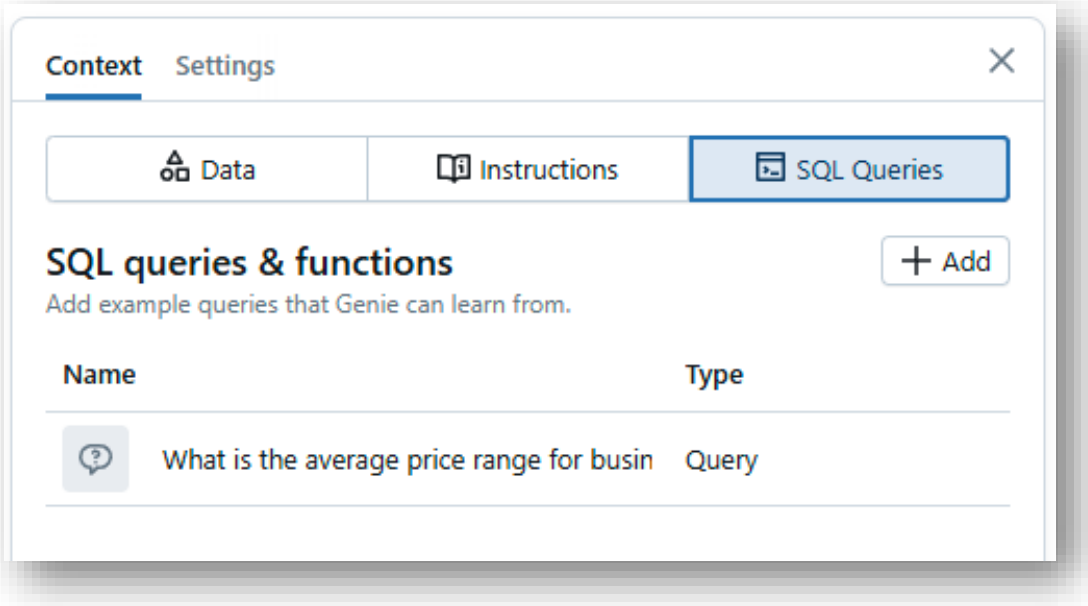
Trusted Assets: Prioritize Curated Logic to Help Genie Deliver Accurate Responses.

Purpose: Ensure Genie uses vetted queries and functions to produce responses users can rely on.

How: Add “Trusted” SQL Queries and Functions with parameters for Genie to prioritize when answering questions.

Tips

- ✓ Trust only production-ready, business-approved assets.
- ✓ Use parameters for repeatable logic.
- ✓ Regularly review Trusted assets to ensure they are valid and relevant.



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Metadata | Value Dictionaries | Custom Instructions | Trusted Assets | **Benchmarking** | Feedback & Monitoring

Benchmarking: Measure Genie's response accuracy using Business-Driven Prompts

Purpose: Test the overall response accuracy using a pre-defined set of test questions.

How: Create realistic questions the corresponding expected SQL query. Genie will compare its response with the provided query output

Tips

- ✓ Phase each question 3 to 5 different ways to simulate realistic language variability from users.
- ✓ Include questions known to be ambiguous or frequently misunderstood.
- ✓ Repeat benchmarks regularly to monitor performance over time.

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Metadata | Value Dictionaries | Custom Instructions | Trusted Assets | Benchmarking | **Feedback & Monitoring**

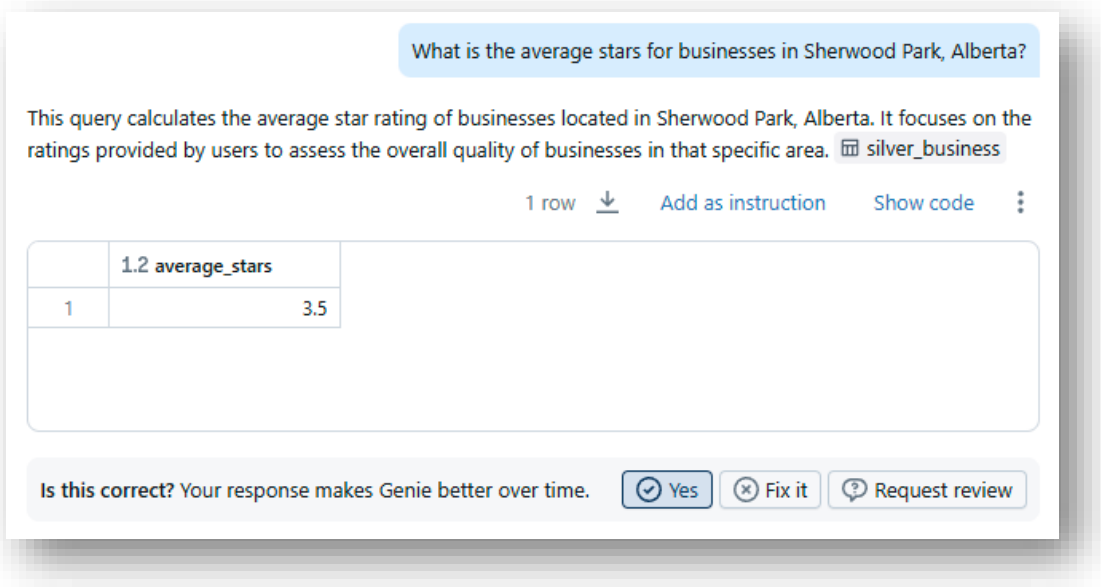
Feedback & Monitoring: Improve Genie Over Time by Capturing and Acting on User Input.

Purpose: Creates a continuous improvement loop by tracking user's feedback to improve performance.

How: Users provide feedback on responses. These signals are tracked and monitored to help identify areas where Genie refinements are required.

Tips

- ✓ Encourage users to give feedback (Yes, Fix it, or Request Review). They are crucial in helping improve the Genie.
- ✓ Establish a review process to "Close the loop".



Demo – Lifecycle of Setup and Maintaining a Genie Space

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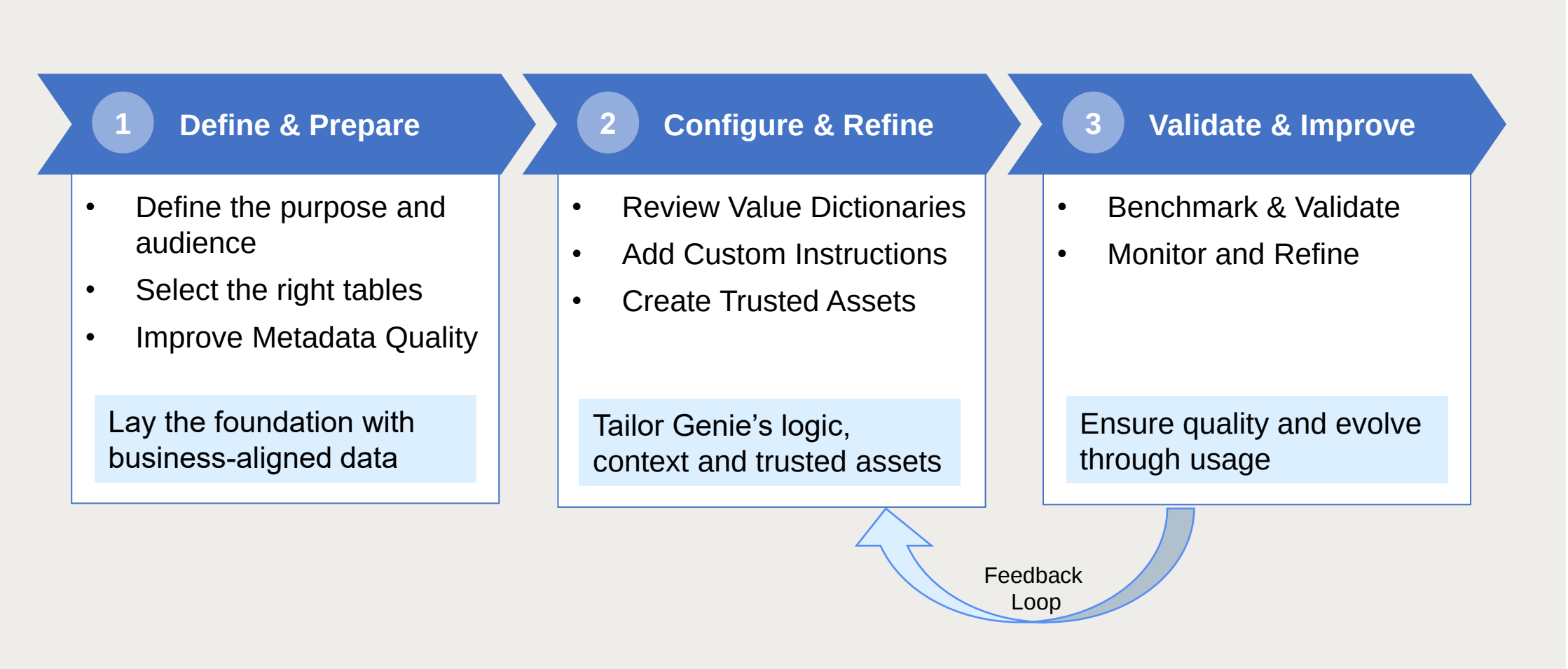
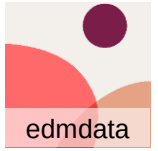


Key Takeaways: Building a Trusted, Self-Serve Genie Space



- To democratize data, users need to “talk to the data” using natural language.
  - Genie enables this – but only works well with thoughtful setup.
- Metadata, Value Dictionaries and Trusted Assets help Genie interpret questions and generate reliable answers.
- Custom instructions align Genie’s tone, logic, and priorities with business context.
- Benchmarking and Feedback loops are essential to continuously improve the data companion’s accuracy and usability.

- The code is in my Github repo:
  - Link: https://github.com/wilson-mok/demo/tree/main/2025/EdmData/2-Azure-Databricks-Democratizing-Data-with-AI-BI-Genie

Thank you

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