

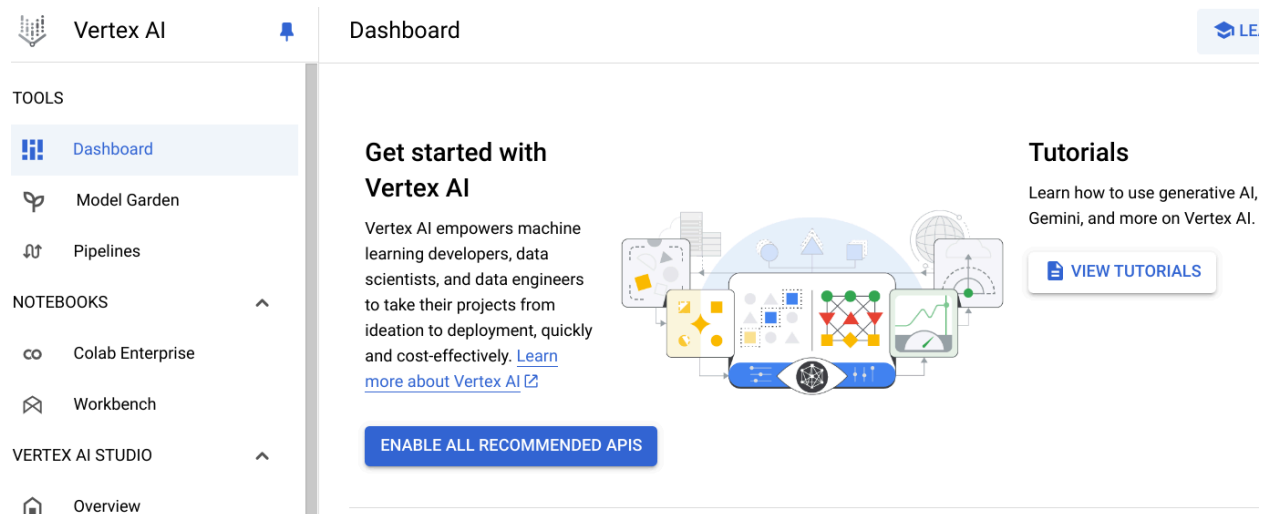
Getting Started with Agent Builder - PDF Q&A

For section-specific guidelines and examples, see below

Set up your environment

Enable the Vertex AI API

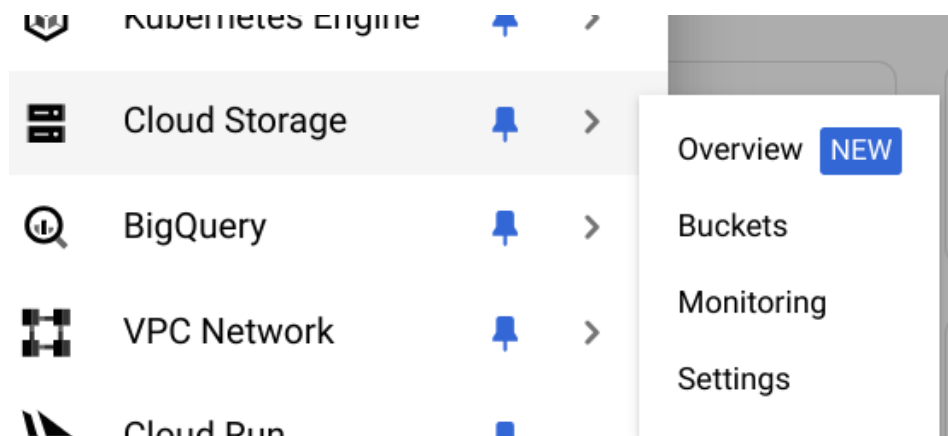
1. In the Google Cloud Console, on the **Navigation menu**, click **Vertex AI** or Utilize the search bar to find **Vertex AI**.
2. Within the "Get Started with Vertex AI" section, locate and click on the option that says "ENABLE ALL RECOMMENDED API."



Q&A over PDF documents

Task 1: Create Cloud Storage Bucket

Navigate to Cloud Storage



Create a new Bucket

For bucket name type: "pdf-docs" + last 5 digits of your GCP project.

Location type: multi-region, us.

Storage class: Standard

Access control: Uniform

Data protection: uncheck soft delete policy

Click "Create".

Confirm "Public access will be prevented".

Download PDF report and upload it to the bucket.

https://storage.googleapis.com/ancient-sandbox-322523-external-bucket/exec_guide_gen_ai_shortened.pdf

Bucket with uploaded file view:

The screenshot shows the Google Cloud Storage interface. On the left, a sidebar contains 'Cloud Storage', 'Overview' (marked 'NEW'), 'Buckets', 'Monitoring', and 'Settings'. The main area is titled 'Bucket details' and shows the bucket 'pdf-docs-2c5e8'. Below the bucket name, a table lists properties: Location (us), Storage class (Standard), Public access (Not public), and Protection (None). A tabbed interface below shows 'OBJECTS' selected, displaying a 'Folder browser' with the bucket name and a list of objects. The object list has columns for checkboxes, Name, Size, and actions. One object is visible: 'exec_guide_gen_ai_shortened.pdf' with a size of 6.4 M. Navigation links like 'GO TO PATH', 'REFRESH', and 'LEARN' are at the top right.

Location	Storage class	Public access	Protection
us (multiple regions in United States)	Standard	Not public	None

	Name	Size	
<input type="checkbox"/>	exec_guide_gen_ai_shortened.pdf	6.4 M	

Task 2: Data store configuration

Search or Navigate to "Agent Builder"

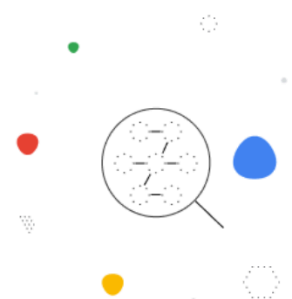
Click Continue and Activate the API

Welcome to Vertex AI Agent Builder

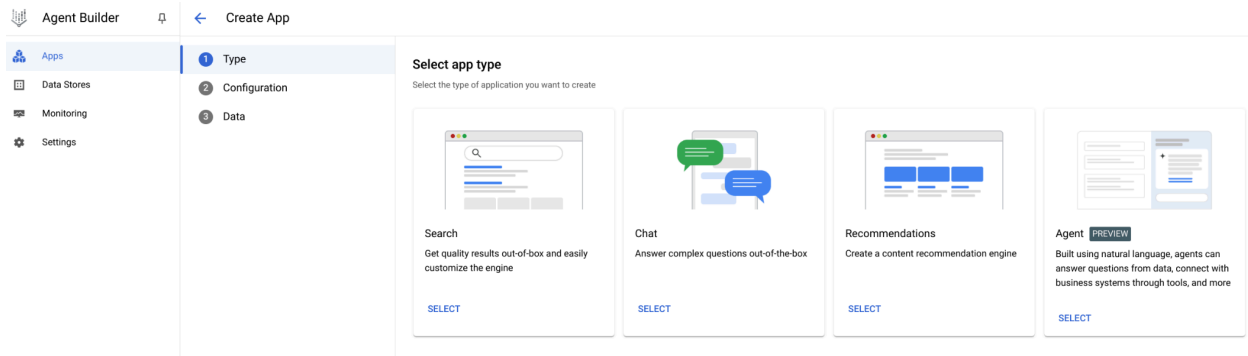
Vertex AI Agent Builder allows developers to quickly build new experiences such as custom search engines and conversational apps via out-of-the-box templates and APIs.

- ☐ Improve the quality and the performance of your Vertex AI Agent Builder models, and diagnose issues faster by allowing Google to selectively sample model inputs and results. See [Terms](#). We do not share model weights or Customer Data cross customers.

CONTINUE AND ACTIVATE THE API

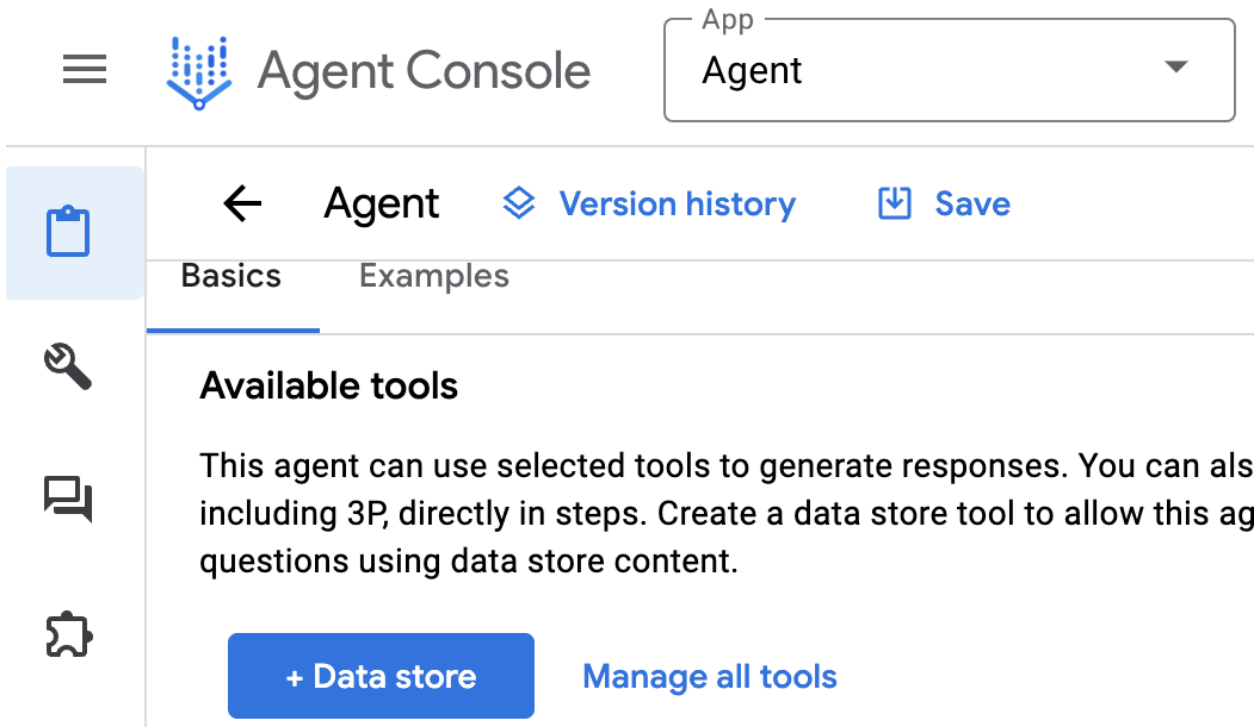


In Create App, select the Agent



Click Agree and Create

Click the + "Data store" icon



Use following values:

Tool name: pdf-docs

Type: Data store

Description: pdf-docs

Click "Save"

← Tools [Save](#)

Using tools, you can connect agents to external systems. These systems can augment the knowledge for complex tasks efficiently. [Learn more](#)

Tool name*

pdf-docs

Type

Data store

Data store tools can be used by a generative agent for answers to end-user's questions from your data.

Note: Conversation history is used as context during tool invocation. [Learn more](#)

Description

Provide a description of this tool. This description is provided to the model as context informing how to use the tool.

Description

pdf-docs

Data stores

Data stores are created and managed through Vertex AI Search and Conversation. [Learn more](#)

[Create a data store](#) [↗](#)

Click the "Create a data store" at the bottom on the page.

Click "AGREE" when asked about "Do you agree to have your search & conversation data stores in the us region?"

Type "Google" in the "Provide Company" field and press "Continue"

On the next screen, click "CREATE DATA STORE".

Select "Cloud Storage" as data source.

NOTE: Prepare data for ingesting

<https://cloud.google.com/generative-ai-app-builder/docs/prepare-data>

HTML and TXT files must be 2.5 MB or smaller.

PDF, PPTX, and DOCX files must be 100 MB or smaller.

You can import up to 100,000 files at a time.

Select: **unstructured documents**

And select your GCS bucket/folder.

Create a Data Store

✓ Source

2 Data

3 Configuration

Import data from Cloud Storage

Specify the data you want to import to your data store

What kind of data are you importing?

For more information, see [Prepare data for ingesting](#).

☒ Unstructured documents (PDF, HTML, TXT and r

Supported file formats: PDF, HTML, TXT (CSV for FA

☐ Linked unstructured documents (JSONL with me

JSONL files with unstructured document links and it

☐ Structured FAQ data for a chat application (CSV)

Structured FAQ data

Select a folder or a file you want to import

FOLDER

FILE

gs:// *

CONTINUE

CANCEL

Select folder

Select Cloud Storage location.

< pdf-docs-49ca4 ▼

exec_guide_gen_ai.pdf

Select a folder or a file you want to import

FOLDER

FILE

gs:// *

☒ pdf-docs-49ca4

CONTINUE

CANCEL

Click continue:

For data store name type: **"pdf-docs"**

Expand Document Processing Options

Check the **Enable document processing config**

Select ~~"Digital parser"~~ from the dropdown.

Check `Include ancestor headings in chunks`.

Click `"Create"`.

Configure your data store

Configure additional settings for your data store

Location of your data store

Multi-region

us (multiple regions in United States)

Your data store name

Data store name *

pdf-docs

ID: pdf-docs_1729710903895. It cannot be changed later. [EDIT](#)

☐ This data store contains access control information

DOCUMENT PROCESSING OPTIONS

☒ Enable document processing config

Document parsing

Select a parser to apply to your documents. [Learn more about parsing and chunking documents.](#)

Default document parser

Layout Parser

Document chunking

You can't change document chunking after creating the data store

☒ Enable advanced chunking configuration

Chunk size limit

500

Tokens

☒ Include ancestor headings in chunks

CREATE

CANCEL

You have successfully created a data store



Select data store and click "Create"

Create App

✓ Type

✓ Configuration

3 Data

Data Stores [CREATE DATA STORE](#)

Filter Enter property name or value

Name	↑	Connected apps
pdf-docs		N/A

CREATE

CANCEL

You have successfully created an app



Click on the Processing Config tab

Change the default document parser to "Digital Parser"

DOCUMENTS

ACTIVITY

PROCESSING CONFIG

PREVIEW

Document parsing

Select a parser to apply to your documents. [Learn more about parsing and chunking documents.](#)

Default document parser *

Digital Parser

Select the parser override for specific document formats:

Click on the data store and review Documents, Activity and Processing Config.

DOCUMENTS

ACTIVITY

PROCESSING CONFIG

PREVIEW

Activity ?

+ IMPORT DATA

Filter

Status	Detail	Items succeeded	Operation name
 Import in progress	No errors	0	import-documents-7053821392880734941

It will take ~5-10 minutes to complete the import.

DOCUMENTS

ACTIVITY


PROCESSING CONFIG

PREVIEW

Activity ?

+ IMPORT DATA

Filter

Status	Detail	Items succeeded	Operation name
 Import completed	No errors	1	import-documents-7053821392880734941

Parsing and Chunking options

You can control content parsing in the following ways:



- *Digital parser. The digital parser is on by default for all file types unless a different parser type is specified. The digital parser processes ingested documents if no other default parser is specified for the data store or if the specified parser doesn't support the file type of an ingested document.*
- *OCR parsing for PDFs. Public preview. If you plan to upload scanned PDFs or PDFs with text inside images, you can turn on the OCR parser to improve PDF indexing. See [About OCR parsing for PDFs](#).*
- *Layout parser. Public preview. Turn on the layout parser for HTML, PDF, or DOCX files if you plan to use Vertex AI Search for RAG. See [Chunk documents for RAG](#) for information about this parser and how to turn it on.*

[Learn more about parsing and chunking documents.](#)






Task 3: Tool configuration


Return to the Agent Console tab with Tools configuration.

Refresh the browser and select "pdf-docs" from the Unstructured dropdown.

 Agent Console


App
Agent



← Tools  Save

Data stores

Select up to one data store of each type. Refresh to see newly created data stores.

[Refresh data stores](#)  [Manage data stores](#)

Display name	Type
<div>Data store</div>	Website
<div>Data store pdf-docs</div>	Unstructured documents
<div>Data store</div>	FAQ documents

Scroll down to the Grounding section

Type "Google" for company name.

Payload settings - check "Include snippets in the response payload"



Tools



Save



Data store



FAQ documents



Grounding

Grounding gauges the confidence that all information in the response is supported by information in the data stores.

Enable grounding



Each response generated from the content of your connected data stores is given a score of how likely it is to be grounded and, as a correlation, accurate. You can customize which types of scores to allow. If a response comes back with a score you have not allowed, it will not be shown. [Learn more](#)

Lowest score allowed

Low: We have low confidence that the response is grounded



Apply grounding heuristics filter



We've created this extra filter to catch and suppress responses containing content that is likely inaccurate based on common hallucinations (e.g. made up numbers).

Company name

Company

Google

Data store summarization prompt and model selection



Use default summarization prompt



Customize summarization prompt

Select generative model

Default

[Learn more about model versioning](#)

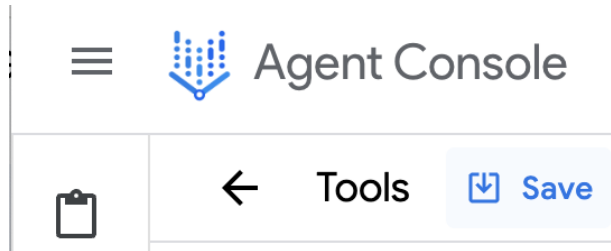
Payload settings



Include snippets in response payload



Click "Save".



Tool saved successfully!



Task 4: Agent's instructions configuration

Click on the Agents icon in the navigation bar

Click on the Default Generative Agent

Add new instruction:

Unset

- Provide detailed answer to users questions about the exec guide to gen ai using information in the `${TOOL:pdf-docs}`

Instructions

[? Sample](#)

Instructions

- Provide detailed answer to users questions about the exec guide to gen ai using information in the `${TOOL:pdf-docs}`

Save configuration.

Task 5: Create an example for PDF-Docs tool

Switch to the Examples tab. Create a new example.

Using actions `"+"`:

Agent response

User input

Tool use

Agent invocation

Dialogflow Flow invocation

Retrieved content



Enter user input



Give it the Display Name "user-question-flow-1"

Add "User input":

Unset

What are the main capabilities?

Click the Add action and Add "Tool use".

- Tool & Action should both be: "pdf-docs"

Check the Include Input (requestBody)

Tool input:

Unset

```
{
  "query": "Main capabilities",
  "filter": "",
  "userMetadata": {},
  "fallback": ""
}
```

Tool Output:

Unset

```
{
  "answer": "Detailed answer about main capabilities",
  "snippets": [
    {
      "uri":
"https://storage.googleapis.com/ancient-sandbox-322523-external-bucket/exec_guide_gen_ai_shortened.pdf",
      "text": "Detailed answer about main capabilities",
      "title": "exec_guide_gen_ai"
    }
  ]
}
```

Add Action: "Agent response"



Agent Response:

Unset

Detailed answer about main capabilities.

https://storage.googleapis.com/ancient-sandbox-322523-external-bucket/exec_guide_gen_ai_shortened.pdf

Configured example:










Edit example  Save  Cancel

Examples are sample conversations between an end-user and the agent, including the dialogue and the agent's corresponding actions. [Learn more](#)

Display name*

Basic Settings

Input & Output

	What are the main capabilities?	
	pdf-docs  Tool	pdf-docs Action
	1 Input parameters	1 Output parameters
		
	Detailed answer about main capabilities.	 
	<input type="text" value="https://storage.cloud.google.com/pdf-docs-49ca4/exec_guide_gen_ai.pdf"/>	

Tool invocation configuration:

Edit example

Save

Cancel

Input & Output

What are the main capabilities?

pdf-docs

pdf-docs

1

1

Input parameters

Output parameters

Tool*

pdf-docs

Action name

pdf-docs

Name of the action to be called during the tool use.

Tool input

Include input

requestBody

Input (requestBody) *

```
{
  "fallback": "",
  "userMetadata": {},
  "query": "main capabilities",
  "filter": ""
}
```

Tool output

Output (200) *

```
{
  "answer": "Detailed answer",
  "snippets": [
    {
      "uri": "https://storage.cloud.google.com/pdf-docs-49ca4/exec_guide_gen_ai.pdf",
      "text": "Detailed answer about main capabilities",
      "title": "exec_guide_gen_ai"
    }
  ]
}
```

Detailed answer about main capabilities.

https://storage.cloud.google.com/pdf-docs-49ca4/exec_guide_gen_ai.pdf

+

Enter user input

Once saved, click cancel to exit the editor.

Test the configuration by sending a question to the Agent in the Preview Agent emulator.

Question:

Unset

What are the 10 steps in the exec guide?

Preview agent: Default Generative Agent

Max token count per LLM call in current turn: input 3780, output 104

Expand all

Agent invocations

Default
Generative...

what are the 10 steps in the exec guide?

pdf-docs
Tool

pdf-docs
Action

1
Input parameters

1
Output parameters



The executive guide to generative AI outlines 10 steps to launch your first use case in 30 days. These steps include:

1. Identify a specific domain
2. Select a persona
3. Determine data sources
4. Create a tiger team
5. Define your goals
6. Design prompts with the tiger team
7. Build UX and UI
8. Expand to more users
9. Build an LM
10. Expand to operations and plan more use cases

Select "Default Generative Agent" and click "Save example".

Provide a name "user-question-flow" and save.

Format agent response and include link to the pdf doc from the tool output section.

The executive guide to generative AI outlines 10 steps to launch your first use case in 30 days. These steps include:

1. Identify a specific domain
2. Select a persona
3. Determine data sources
4. Create a tiger team
5. Define your goals
6. Design prompts with the tiger team
7. Build UX and UI
8. Expand to more users
9. Build an LM
10. Expand to operations and plan more use cases

https://storage.googleapis.com/ancient-sandbox-322523-external-bucket/exec_guide_gen_ai_shortened.pdf

Add action

Click Create to save the example.

Click Cancel to return to the Emulator

Click "Replay conversation". Check the updated response format.

what are the 10 steps in the exec guide?

pdf-docs
Tool

pdf-docs
Action

1
Input parameters

1
Output parameters



The executive guide to generative AI outlines 10 steps to launch your first use case in 30 days. These steps include:

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9. Build an LM
10. Expand to operations and plan more use cases

https://storage.googleapis.com/ancient-sandbox-322523-external-bucket/exec_guide_gen_ai_shortened.pdf

Ask another question:

Unset

What are the main capabilities in the exec guide?



What are the main capabilities in the exec guide?



pdf-docs
Tool

pdf-docs
Action

1
Input parameters

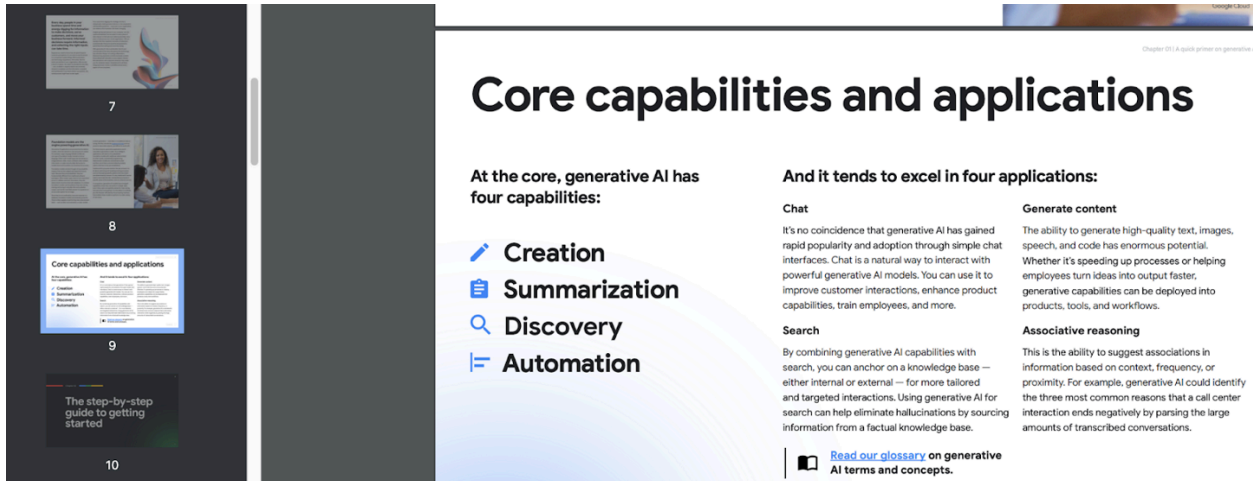
1
Output parameters



The executive guide to generative AI outlines four core capabilities: creation, summarization, discovery, and automation. These capabilities are used in four applications: chat, search, generate content, and associative reasoning.

https://storage.googleapis.com/ancient-sandbox-322523-external-bucket/exec_guide_gen_ai_shortened.pdf

Source PDF document.



Question:

Unset

What should I consider when evaluating projects?

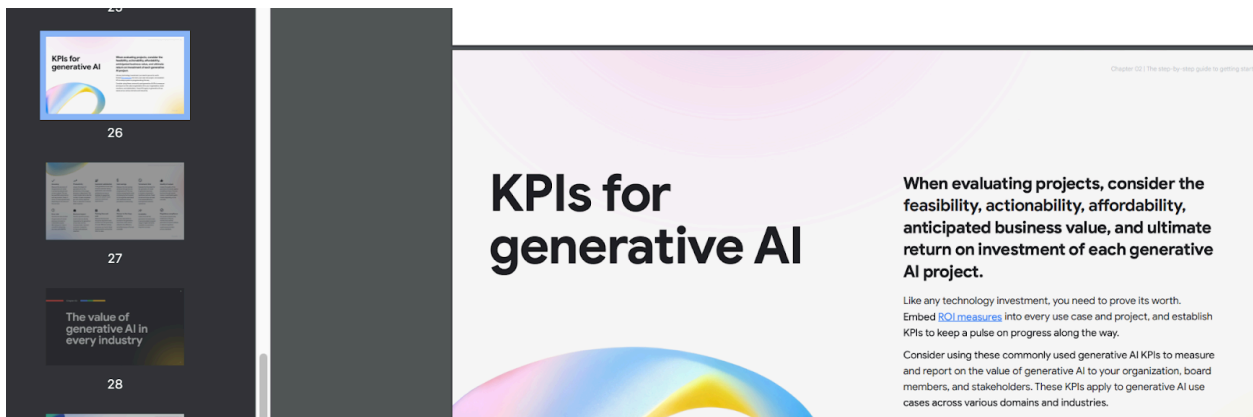
What should I consider when evaluating projects?

Tool	Action	Input parameters	Output parameters
pdf-docs	pdf-docs	1	1

When evaluating generative AI projects, consider the feasibility, actionability, affordability, anticipated business value, and ultimate return on investment. You should also embed ROI measures into every use case and project, and establish KPIs to keep a pulse on progress.

https://storage.googleapis.com/ancient-sandbox-322523-external-bucket/exec_guide_gen_ai_shortened.pdf

Source PDF document.



Question:

Unset

What are the priority use cases in Retail and CPG in the exec guide?



What are the priority use cases in Retail and CPG in the exec guide?



pdf-docs
Tool

pdf-docs
Action

1
Input parameters

1
Output parameters



The executive guide to generative AI outlines three priority use cases for retail and CPG:

- Creative assistance
- Conversational commerce
- Customer service automation

https://storage.googleapis.com/ancient-sandbox-322523-external-bucket/exec_guide_gen_ai_shortened.pdf

Source PDF document.

Chapter 001 The value of generative AI in every industry

Retail and CPG

Insight

82%

of retail organizations consider customer service automation to be valuable⁵

Priority use cases

Creative assistance
Empower retail creative teams to create bespoke images and creative content for campaigns and editorial placements, and enable 1:1 personalization.

Conversational commerce
Interactively address queries, provide recommendations, and engage with customers in real time to help them make shopping decisions (for example, "Sure, here are some dresses in your size and style you may like, and here are influencer images for style inspiration").

Customer service automation
Streamline customer service with conversation summaries and task automation.

New product development
Enhance internal consumer research with easy querying, summarization, and insight generation. Create copy concepts and claims for further testing, and visual concepts for product and packaging designs.

Congratulations!

In this lab, you have successfully learnt about how to build an agent using the Agent Builder on unstructured datasets.