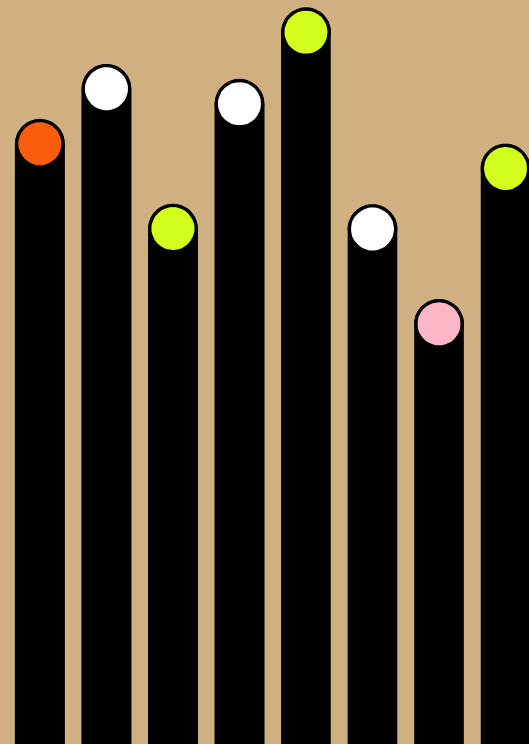


GPT meets BPM

AI-Driven Workflows in Camunda 8

Bennet Krause



Service





About me



Bennet Krause

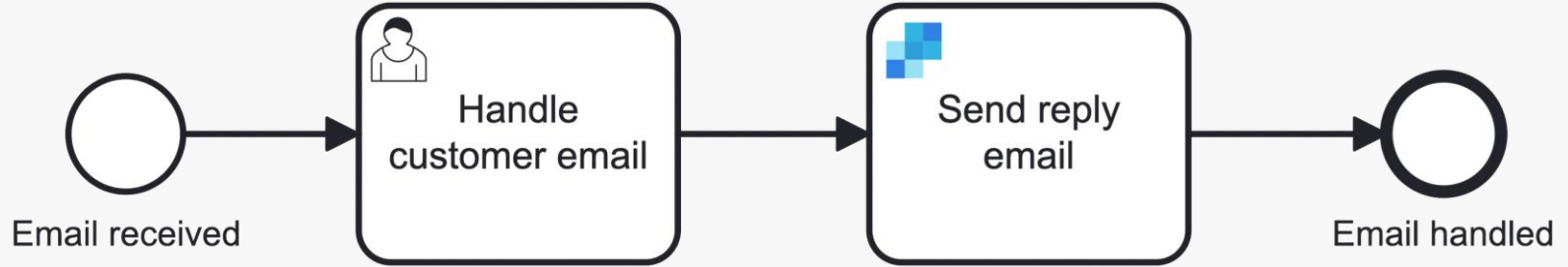
IT Consultant

Holisticon AG

- Based in Hamburg, Germany
- IT Consultant for 2.5 years
- Interested in
 - BPM
 - Software Architecture
 - Language Models

 **holisticon**

Service



Let's improve it with AI!

ChatGPT

Examples

"Explain quantum computing in simple terms" →

"Can you give me creative ideas for a 10 year old's birthday?" →

"How do I make an HTTP request using curl?" →



Capabilities

Remembers what user said earlier in the conversation

Allows user to provide follow-up corrections

Trained to decline inappropriate requests



Limitations

May occasionally generate incorrect information

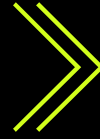
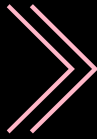
May occasionally produce harmful instructions or biased content

Limited knowledge of world and events after 2021

Large Language Model (LLM)

Prompt

Hello CamundaCon!



Completion

I'm very happy to be here with you and I hope that you will enjoy my session.

Large Language Model (LLM)

System Prompt

You are a helpful assistant talking like Yoda, outputting JSON.

User Prompt

Define CamundaCon.



Completion

```
{"definition": "An event, CamundaCon is, where users, developers, and thought leaders of the Camunda software gather, they do. Share best practices, learn about new features, and network with others in the community, they do."}
```

LLM Capabilities



Text Generation



Summarization



Translation



Information Extraction



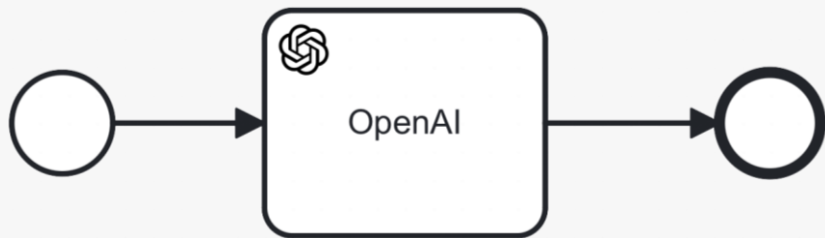
Classification







Reasoning

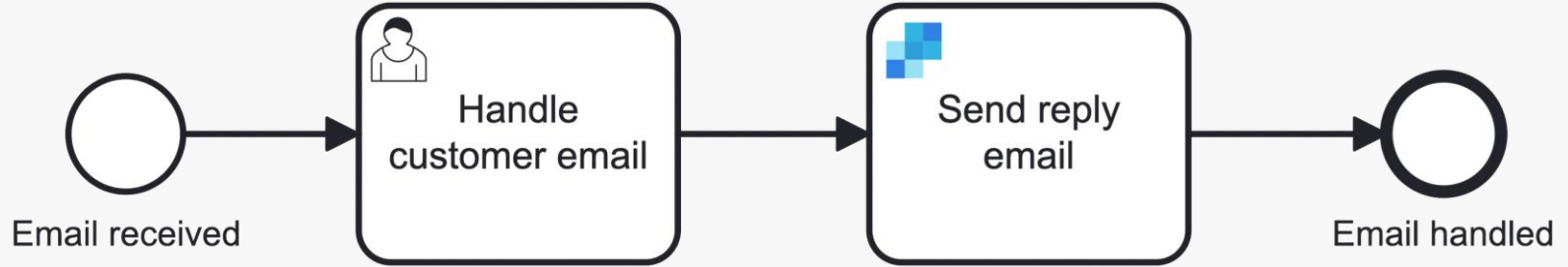
OpenAI Connector

Great start, but...



-  Just one provider: OpenAI
-  Low-level prompt engineering
-  Only single request
-  No complex result parsing

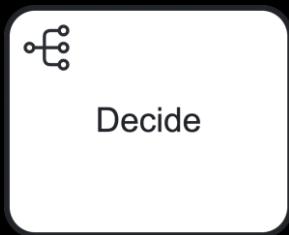
- Task specific connectors for C8 powered by large language models (LLMs)
- What do you need to do?
 - Input variable mapping
 - Task configuration
 - Output variable mapping
- What do the connectors do?
 - Crafting Prompts
 - LLM provider interfacing
 - Parsing
 - Error handling



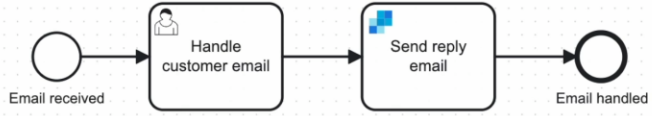
Decision Connector

„What is the intention of the customer's mail?“

```
{  
  "subject": "Where Is My Order?",  
  "body": "Hello Customer Support,\n\nI recently placed an order through your website and am reaching out to check on its status. The order number is #445. Could you please provide me with an update on its current location and expected delivery date?\n\nBest regards,\nJohn Doe"  
}
```



```
{  
  "decision": "QUESTION_ABOUT_ORDER",  
  "reasoning": "The customer explicitly"  
}
```

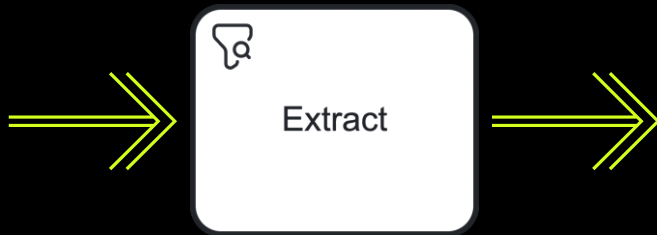
General	• >
Documentation	>
Extension properties	+
Example data	>

Empty workspace for process details, including a section for example data.

Extract Connector

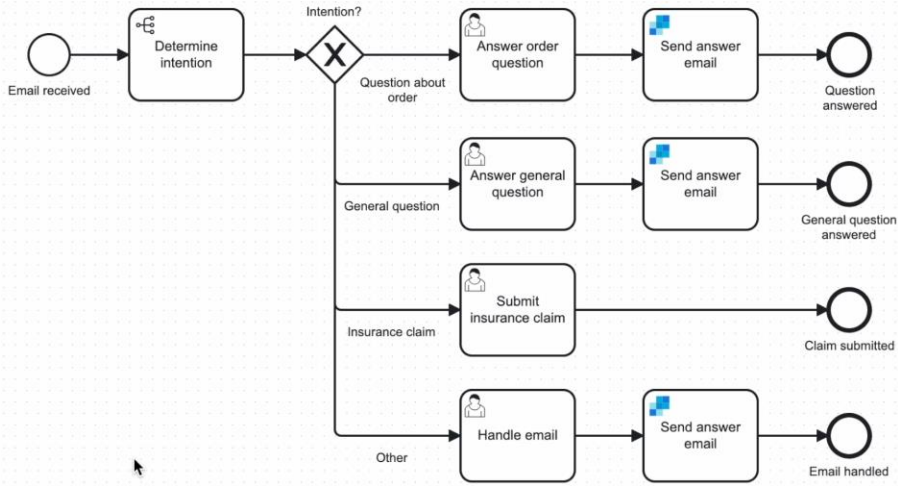


JSON Schema



```
{  
  "firstname": "John",  
  "lastname": "Doe",  
  "language": "English",  
  "orderNo": 445  
}
```

Hello Customer Support,
I recently placed an order through your website and am reaching out to check on its status. The order number is #445. Could you please provide me with an update on its current location and expected delivery date?
I appreciate your assistance in this matter and look forward to receiving my order soon.
Best regards,
John Doe

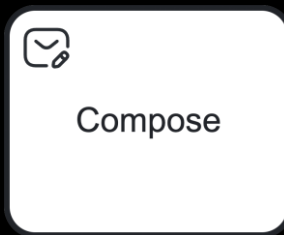


General	• >
Documentation	>
Extension properties	+
Example data	>

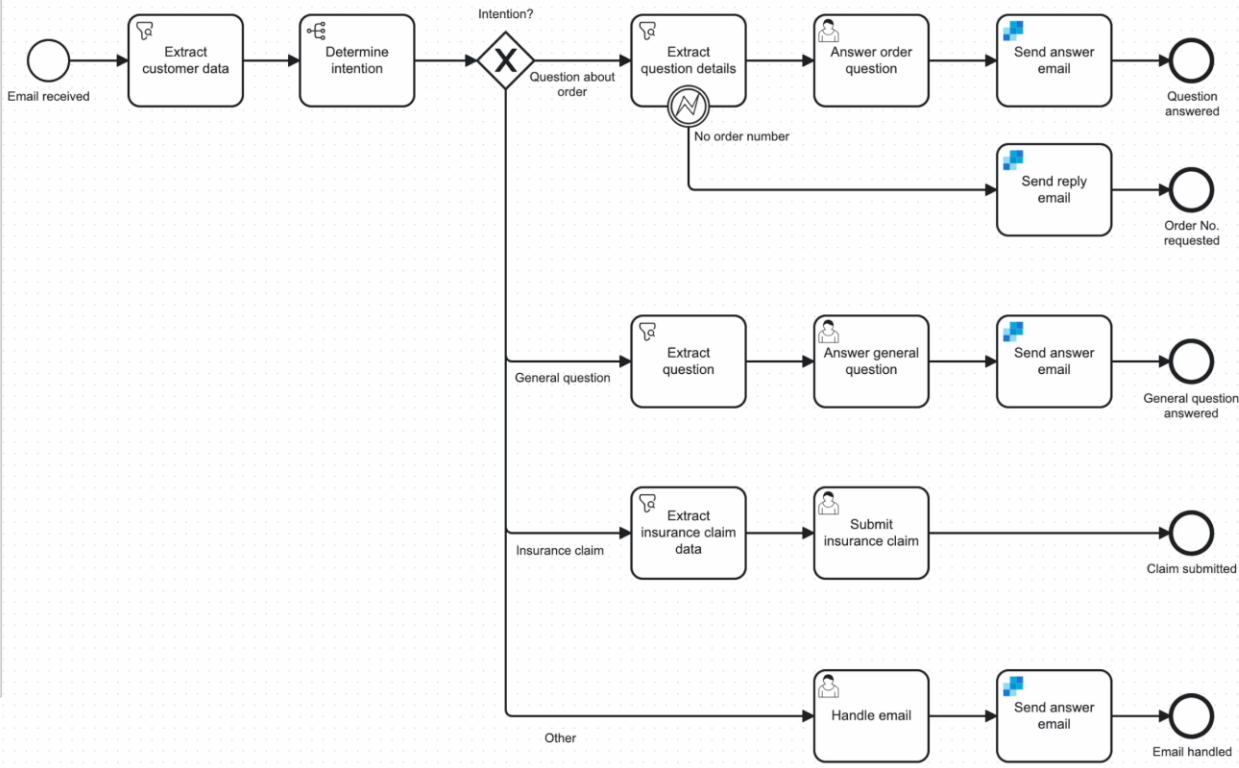
Compose Connector

Template or
instructions

```
{  
  "firstname": "John",  
  "lastname": "Doe",  
  "question": "Where is my order #445?",  
  "answer": "Shipped yesterday"  
}
```



Hello John Doe,
Thank you very much for reaching out to us regarding the status of your order. We always appreciate the opportunity to assist our valued customers. I am pleased to inform you that your order has been processed promptly and was shipped out yesterday. You should expect it to arrive soon. We trust that you will be satisfied with your purchase and look forward to serving you again in the future. If you have any further questions or concerns, please don't hesitate to contact us. Your satisfaction is our top priority. Best wishes and happy riding, Your Bike Store Team.



- General
- Documentation
- Extension properties
- Example data

Empty workspace area for editing the process diagram.

Foundational Connectors



Extract

Unstructured to
Structured Data



Decide

Decisions /
Classification



Compose

Write Text From
Instructions /
Template



Translate

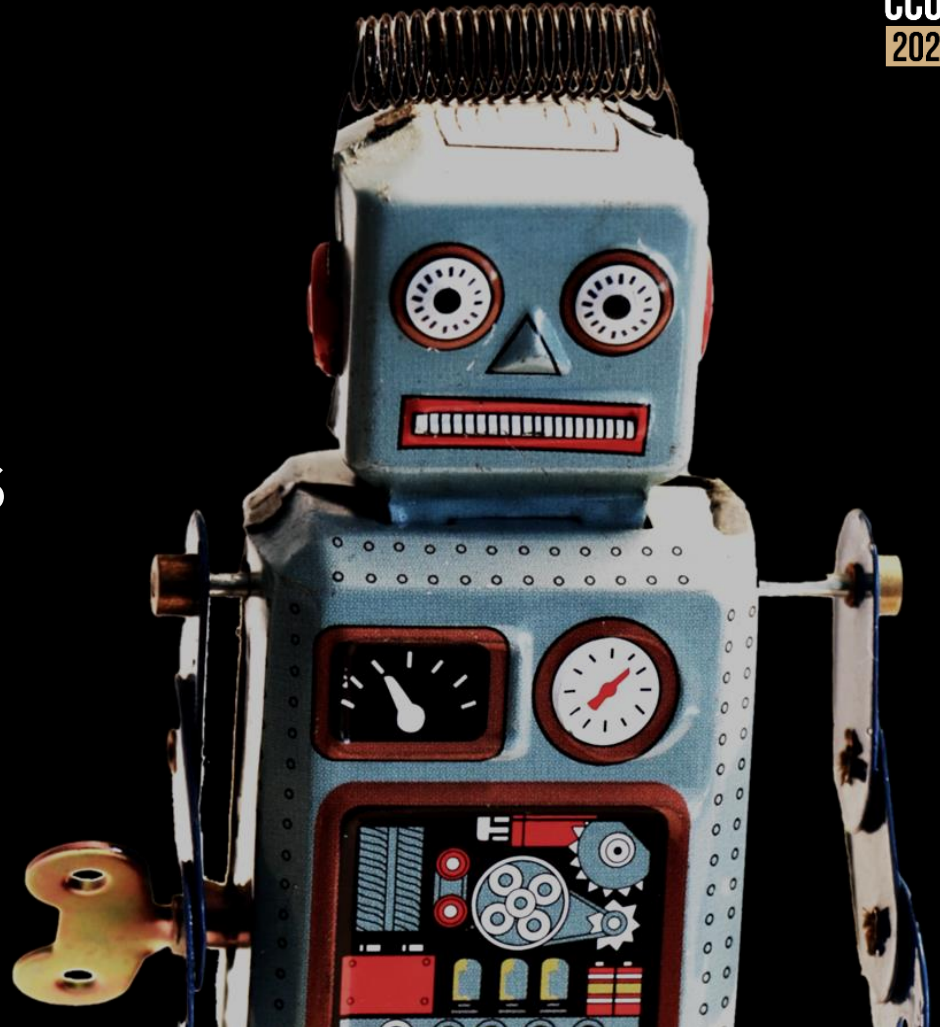
Any Language to Any
Language



Generic

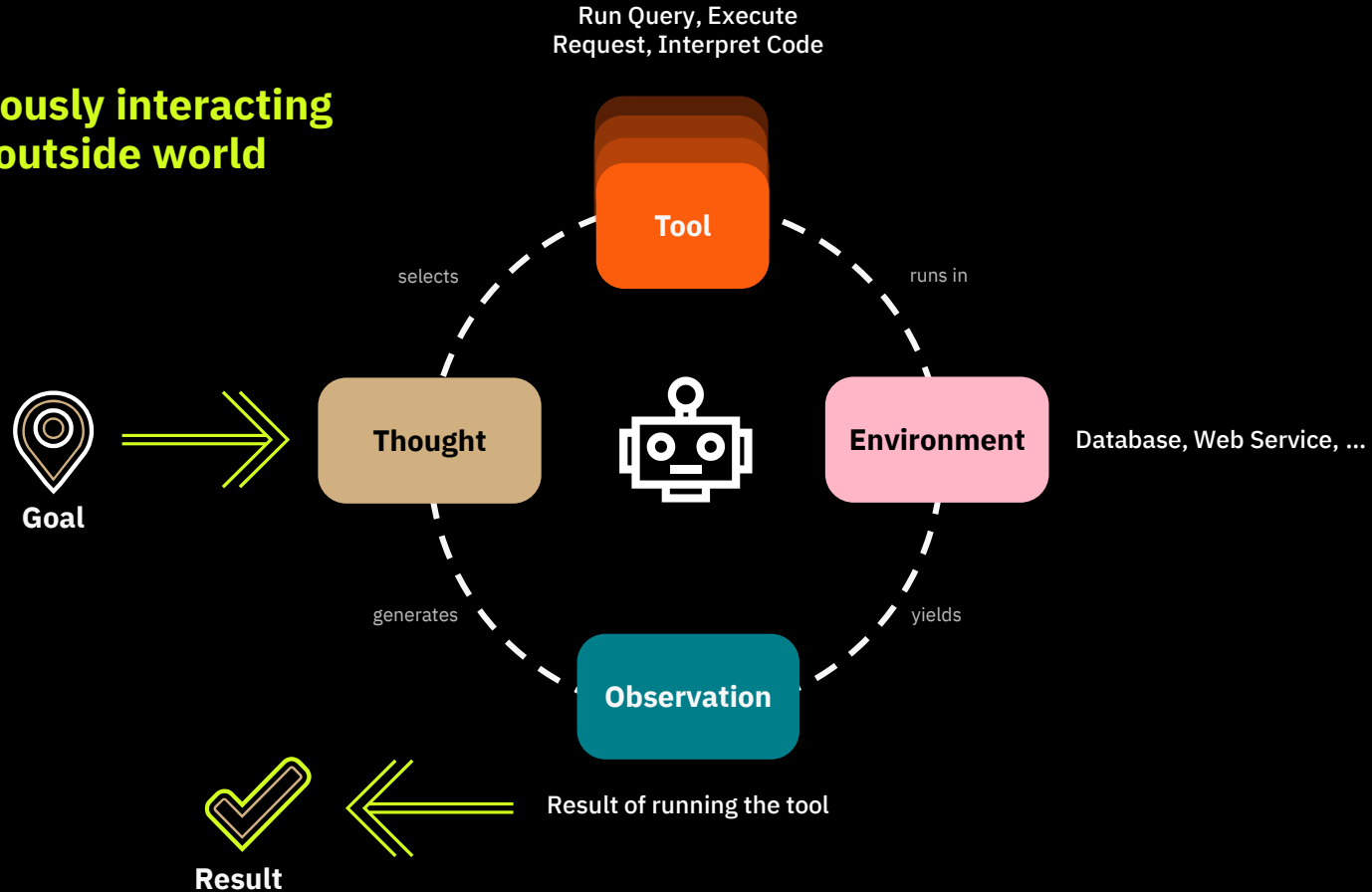
Perform Any Task

Agentic Connectors



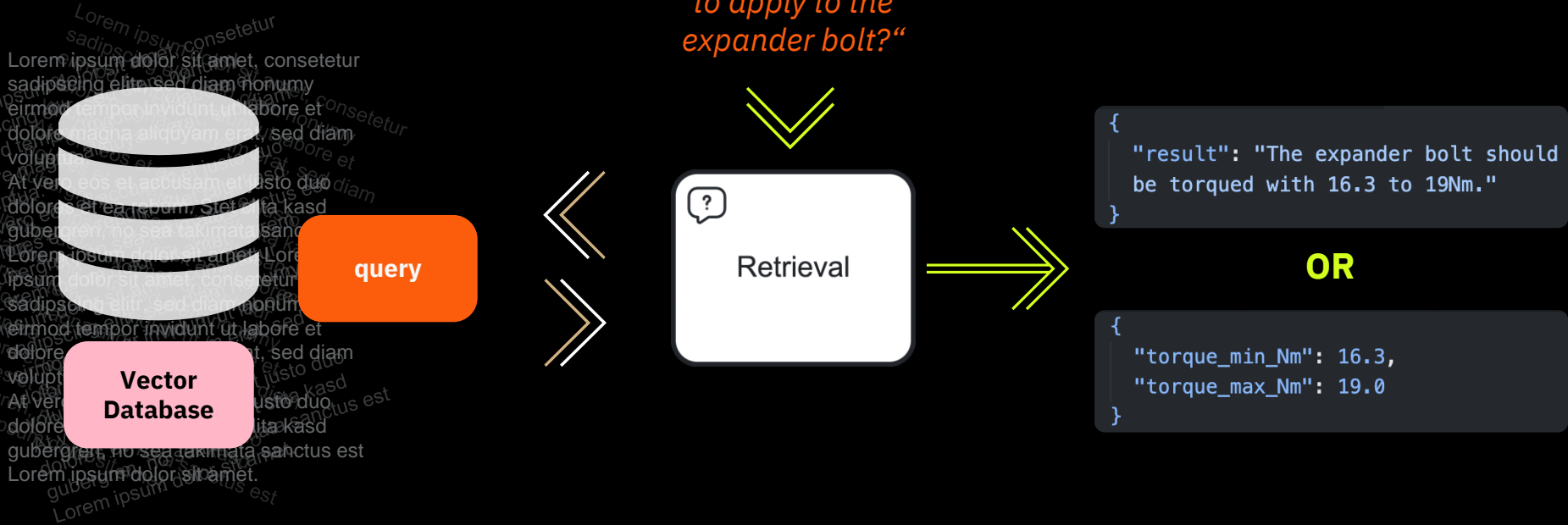
LLM Agent

Autonomously interacting
with the outside world

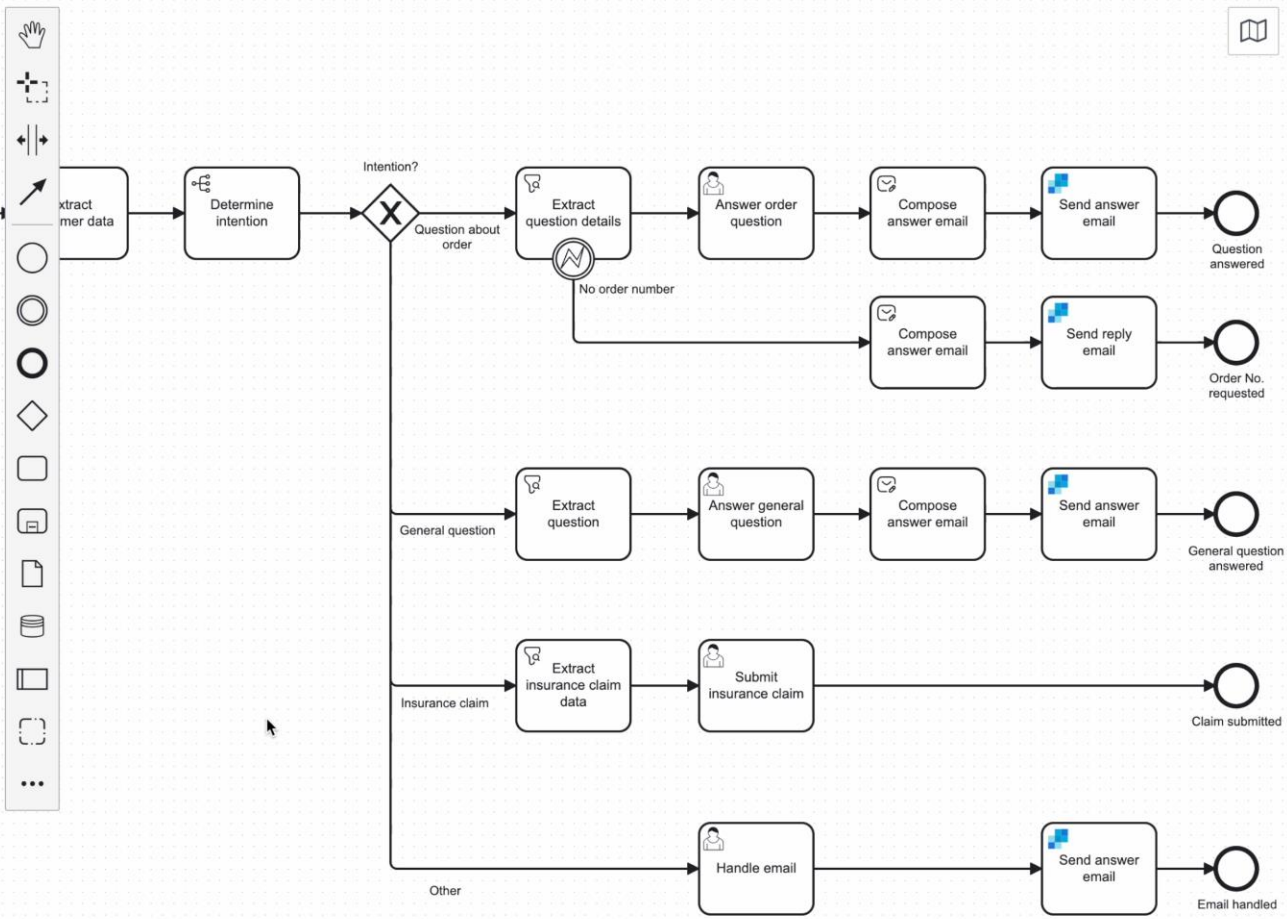


Q&A Retrieval Connector

„How much torque
to apply to the
expander bolt?“



- General
- Documentation
- Extension properties
- Example data



Database Connector

*„What are the
personal details of
the customer?“*

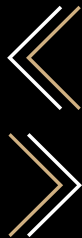


list_tables

sql_schema

SQL
Database

sql_query

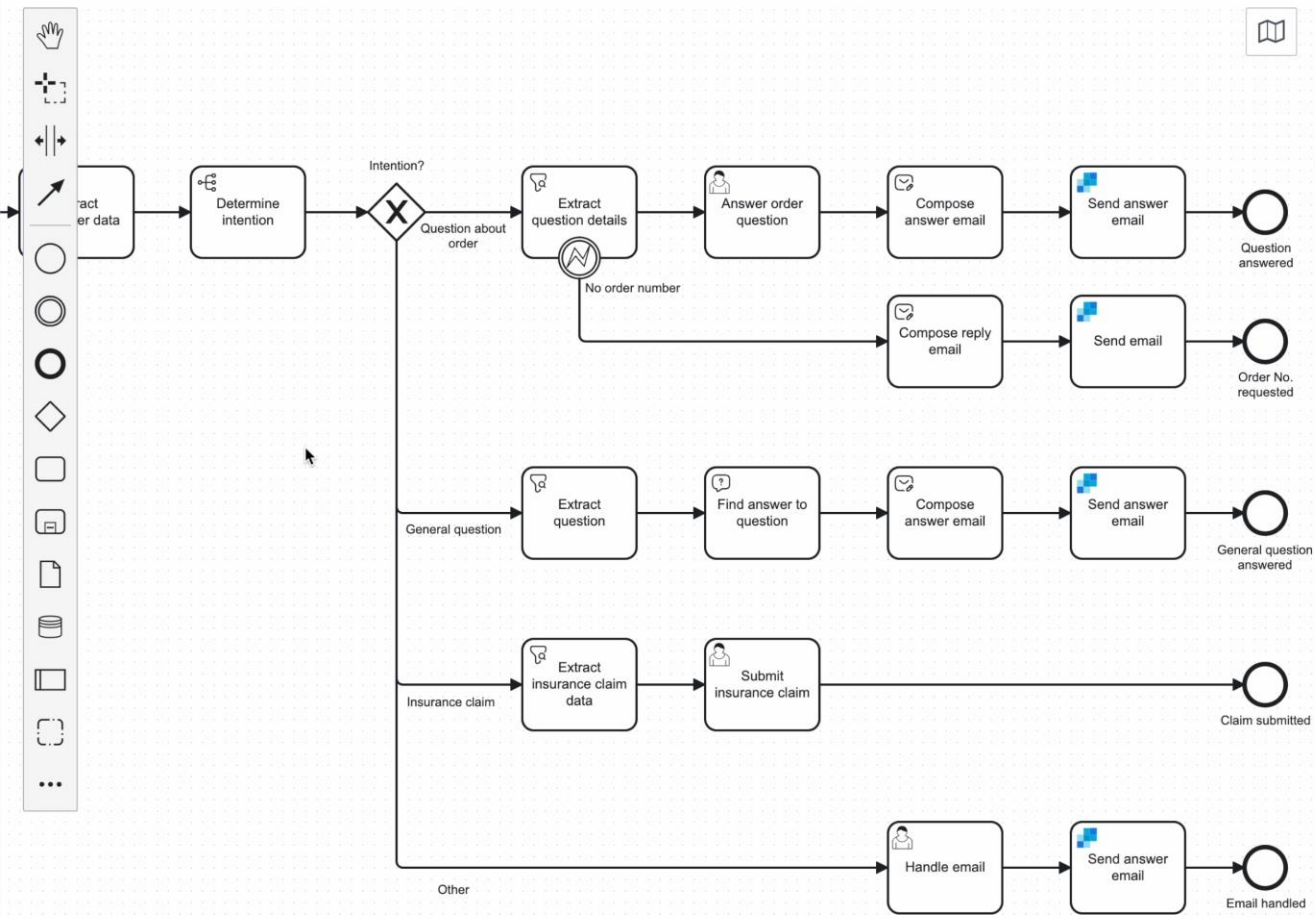


```
{  
  "answer": "The personal details of the  
customer are that his name is Max Mustermann,  
he speaks German, and his email address is  
max.mustermann@web.de."  
}
```

OR

```
{  
  "firstname": "Max",  
  "lastname": "Mustermann",  
  "language": "German",  
  "email": "max.mustermann@web.de"  
}
```

- General
- Documentation
- Extension properties
- Example data



Agentic Connectors



Database

Query SQL
Databases



OpenAPI

Interact With REST
Services



Q&A Retrieval

Answer Questions
Over Documents



Process

Dynamically Model &
Execute Processes



Plan & Execute

Create Plan &
Execute Step-By-
Step

Properties Comments

PROCESS
Bike Store Customer Service

General

Documentation

Element documentation

Extension properties

Example data

Start instance

Select a cluster

Your diagram will be deployed in cluster:

Playground (Zeebe 8.2.12) ● Healthy
a5577823-a581-43c8-906c-1e5d48025a2f

Add variables (Optional)

Optionally specify data to add to the newly created instance. Variables can be accessed inside the process instance. Read more about [variables](#).

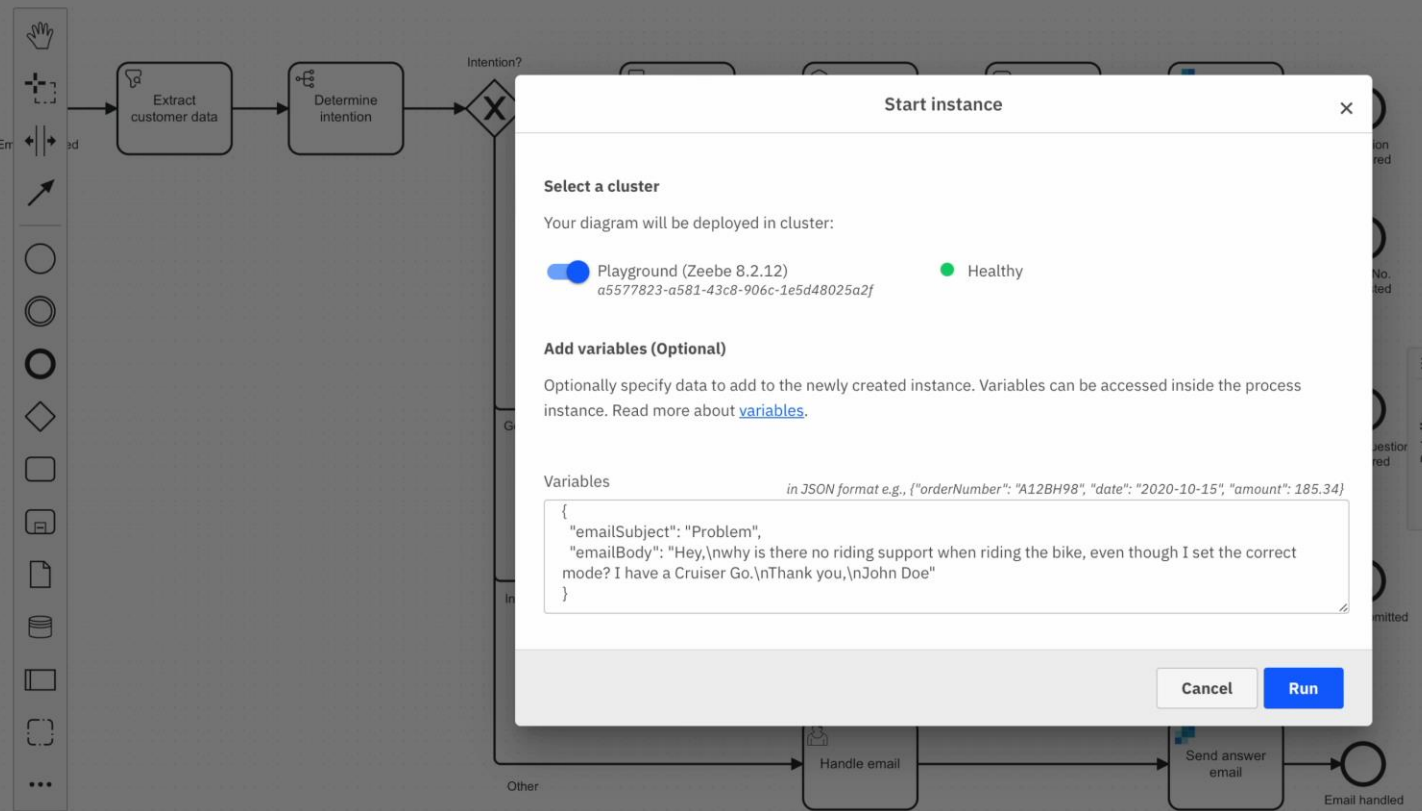
Variables

in JSON format e.g., `{ "orderNumber": "A12BH98", "date": "2020-10-15", "amount": 185.34 }`

```
{
  "emailSubject": "My order",
  "emailBody": "Hello,\nI ordered a bike more than a week ago (#1510). Could you check if it has been shipped yet?\nThank you,\nJohn Doe"
}
```

Cancel

Run



Start instance

Select a cluster

Your diagram will be deployed in cluster:

- Playground (Zeebe 8.2.12) ● Healthy
a5577823-a581-43c8-906c-1e5d48025a2f

Add variables (Optional)

Optionally specify data to add to the newly created instance. Variables can be accessed inside the process instance. Read more about [variables](#).

Variables in JSON format e.g., {"orderNumber": "A12BH98", "date": "2020-10-15", "amount": 185.34}

```
{
  "emailSubject": "Problem",
  "emailBody": "Hey,\nwhy is there no riding support when riding the bike, even though I set the correct mode? I have a Cruiser Go.\n\nThank you,\n\nJohn Doe"
}
```

Cancel Run

Properties

Comments

PROCESS
Bike Store Customer Service

General

Documentation


Element documentation

Extension properties +

Example data >

Details

Properties Comments

 PROCESS
Bike Store Customer Service

General

Documentation

Element documentation

Extension properties

Example data

Start instance

Select a cluster

Your diagram will be deployed in cluster:

Playground (Zeebe 8.2.12) Healthy
a5577823-a581-43c8-906c-1e5d48025a2f

Add variables (Optional)

Optionally specify data to add to the newly created instance. Variables can be accessed inside the process instance. Read more about [variables](#).

Variables

in JSON format e.g., {"orderNumber": "A12BH98", "date": "2020-10-15", "amount": 185.34}

```
"emailSubject": "",
"emailBody": "Name\nMax Mustermann\n\nAddress\n160 Lake Street, 11223 New York
City\n\nPhone\n+1233525534\n\nBicycle Brand\nElectra\n\nBicycle Model\nCruiser Go\n\nIncident Date
\n10-20-2022\n\nIncident Time\n10:30 AM\n\nDescription\nMy bike was stolen from my porch."
}
```

Cancel

Run



Things to keep in mind



Data Privacy

- Use Azure OpenAI or on-prem models
-



Bias

- Don't automate decisions that are ***subjective, ethical, or high stake***
-



Latency & Cost

- Slower and more expensive than traditional algorithms
-



Indeterminism

- Challenging to debug, evaluate, and evolve

What are we working on?

- New connectors
- Experimental connectors
- Improve on program-aided solution strategies
- Camunda 7 support
- Better support for non-OpenAI models
- Support self-hosted models





New Solutions

- LLMs can automate or assist in many BPM tasks



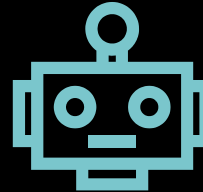
AI + BPMN =

- Transparently combine AI and human tasks
- Enforce review



Challenging

- Prompt Engineering
- Indeterminism
- Evolving models



This Is Just the Beginning

- More capable models
- Assisted modeling
- Autonomous agents

Try it now!



tinyurl.com/camundacon23

Thank You



bennet.krause@holisticon.de



[linkedin.com/in/bennet-krause/](https://www.linkedin.com/in/bennet-krause/)



[holisticon.de](https://www.holisticon.de)

