

Can GenAI help create workflows for APEX?

Experiences using AI with Flows for APEX.

Richard Allen
Flowquest Consulting Limited
richard@flowquest.consulting



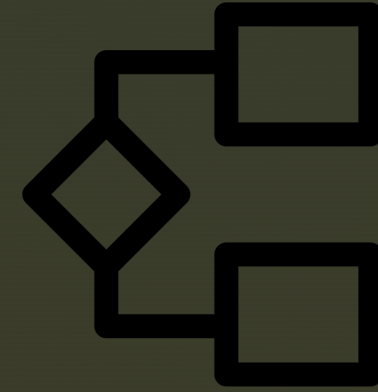
APEX World
Amersfoort
21-22 March 2024

About Me - Richard Allen

- Architect and Major Contributor to Flows for APEX
- Director – Flowquest Consulting Limited (UK)
- Previously:
 - Oracle – APEX Development Team 2022-23
 - Oracle – Director of Secure Systems / Database Security PM 1989 – 1996



Topics



Flows for
APEX

Where can we
use AI / ML in
Business
Processes

Generating
Process
Models with AI

Analyzing
Process
Models

Flows for APEX

BPMN 2.0-based Workflow for APEX Applications

- Flows for APEX is an BPMN 2.0 based Workflow system for APEX developers
- Open-source project developed by the APEX Community, including contributions by Oracle, MT (Hylan), Insum, and Flowquest

Components

- Graphical Process Definition inside APEX using BPMN Modeler
 - import and export of BPMN2.0 XML process diagrams
 - declarative definition of tasks implemented in APEX pages, APEX Approvals, script tasks, email, etc.
- Workflow engine to run process flows
- Monitoring and Management application (the Flows for APEX Application)
- APEX Process Plugins to start, run, step forward, etc, processes in your application and view process progress.

The screenshot displays the 'Flows for APEX' application interface. The top navigation bar includes 'Dashboard', 'Flow Management', and 'Flow Monitor'. The main content area is titled 'Export Parts Order - New Engines for A320 D456'. It features a sidebar with 'Instance Details' and 'Instance Events'. The 'Instance Details' section shows a table with the following data:

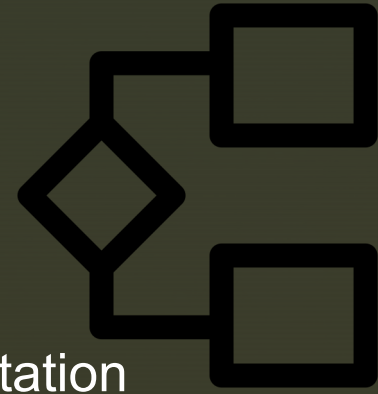
ID	Name	Model	Status	Initialized On	Last Update On	Business Reference
5129	Export Parts Order - New Engines for A320 D456	Process Large Export Order - Version 1	running	28.09.2022 11:47:59	28.09.2022 11:47:59	1125

The 'Instance Events' section shows a table with the following data:

Quick Action	Current	Last Update	Status	Lane	Reserved For	Level
Reschedule	Export Doc Reminder	28.09.2022 11:49:29	waiting for timer @ 30.09.2022 11:49:29	EXPORT_COMPLIANCE		0
Complete	arrange surface shipment	28.09.2022 11:49:29	running	OPS		0
Complete	create LC docs	28.09.2022 11:49:29	running	EXPORT_COMPLIANCE		0
Complete	Sub Task A	28.09.2022 11:49:29	running	EXPORT_COMPLIANCE	21769	1-4

The right side of the interface shows a BPMN diagram titled 'Flow Viewer (Export Parts Order - New Engines for A320 D456)'. The diagram illustrates a process flow starting with a 'Start' event, followed by a 'Task' (represented by a green box), then a 'Gateway' (diamond), and finally an 'End' event. The diagram is labeled 'Process Large Export Order (Level: 0)'.

About BPMN 2.0



- BPMN 2.0: a standard for business process modeling and notation
- Provides a visual representation of business processes using standardized symbols and diagrams
- Helps organizations analyze, optimize, and document their business processes for improved efficiency
- BPMN 2.0 is widely used by business analysts, process managers, IT professionals, and legal/compliance experts
- Most LLMs understand BPMN 2.0, enabling automation and optimization of processes...

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- Demo with ChatGPT – Model understanding, error detection

Model Choices

- Model Choice:
 - Google Gemini good – but currently API not available in EU and UK.
 - Cohere – not so good, yet – but soon...
 - openAI – GPT 3.5 ok, GPT 4.0 good
- Token size Counts – BPMN models are large, 4K tokens inadequate. Gemini, GPT4 - 112K+
- Training Date – GPT 3 – Cut-off September 2021
 - GPT 4 – cut off August 2023

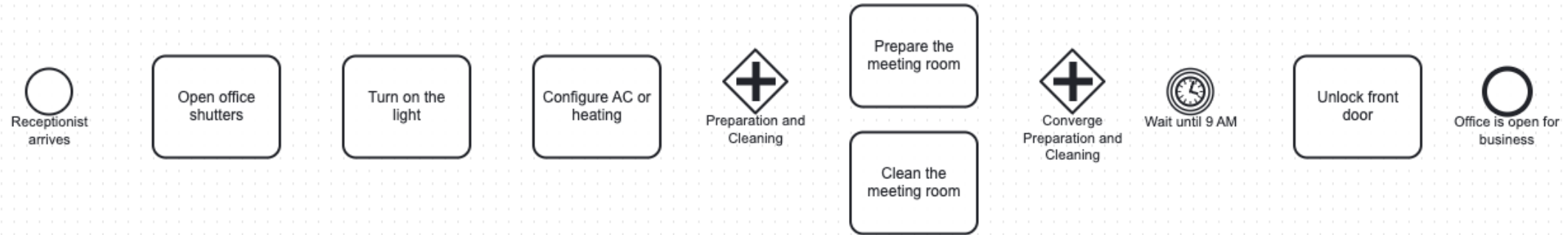
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- Demo – Incorporation of API into Flows for APEX App

Can GenAI create BPMN Diagrams yet?

- Several custom GPTs already created for BPMN.
- Let's try to reverse engineer our simple diagram using BPMN-GPT on OpenAI GPT4....

Prompt:

My process is the process of opening the office in the morning, ready for the business day. When the receptionist arrives, she has to open the office shutters, then turn on the light, and configure the air conditioning or heating. Once this is done, the receptionist prepares the meeting room while the cleaner is cleaning the meeting room. Once this is complete, and when it gets to 9AM, the security person then unlocks the front door and the office is then open for business.

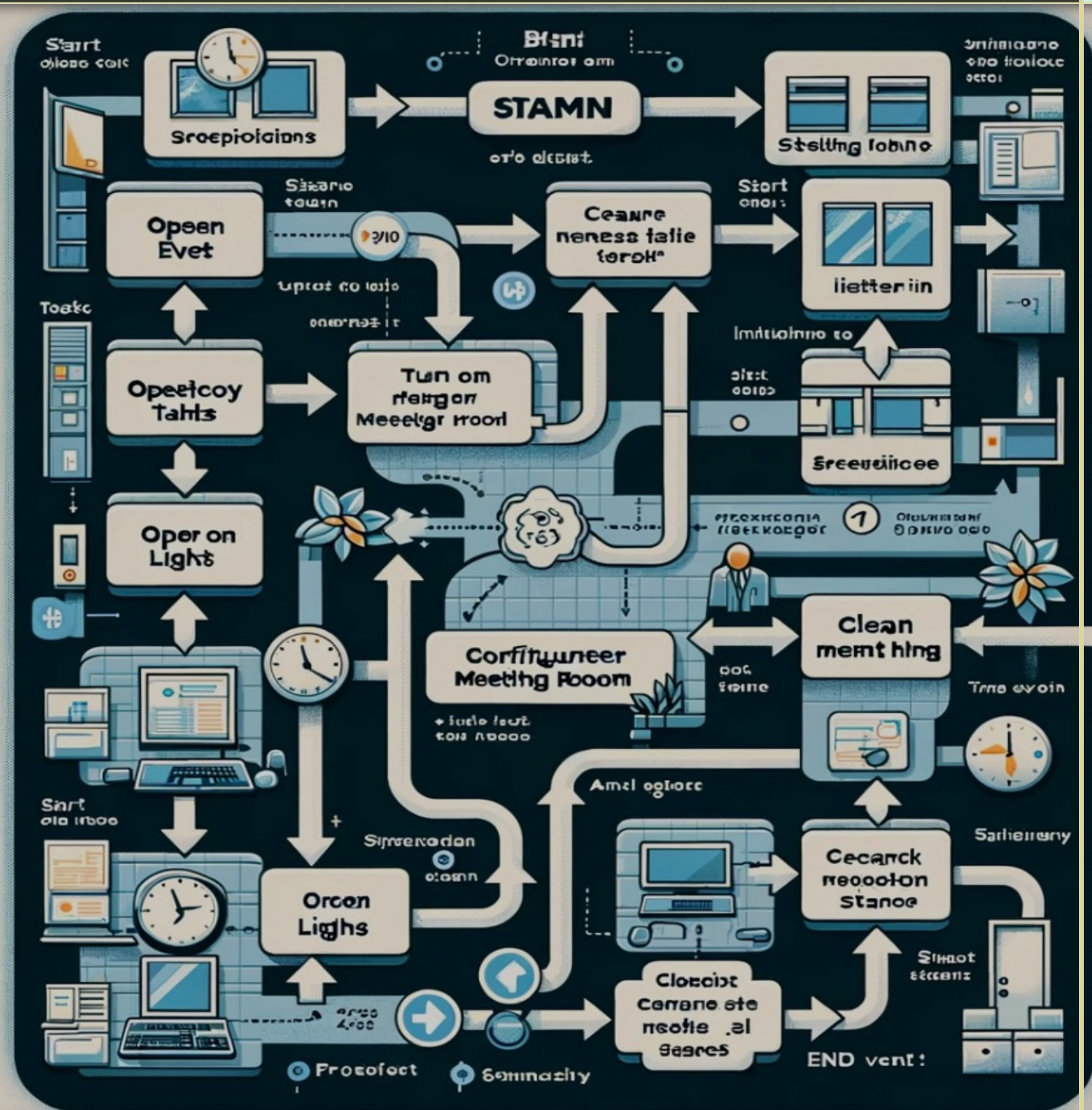


But it can't:

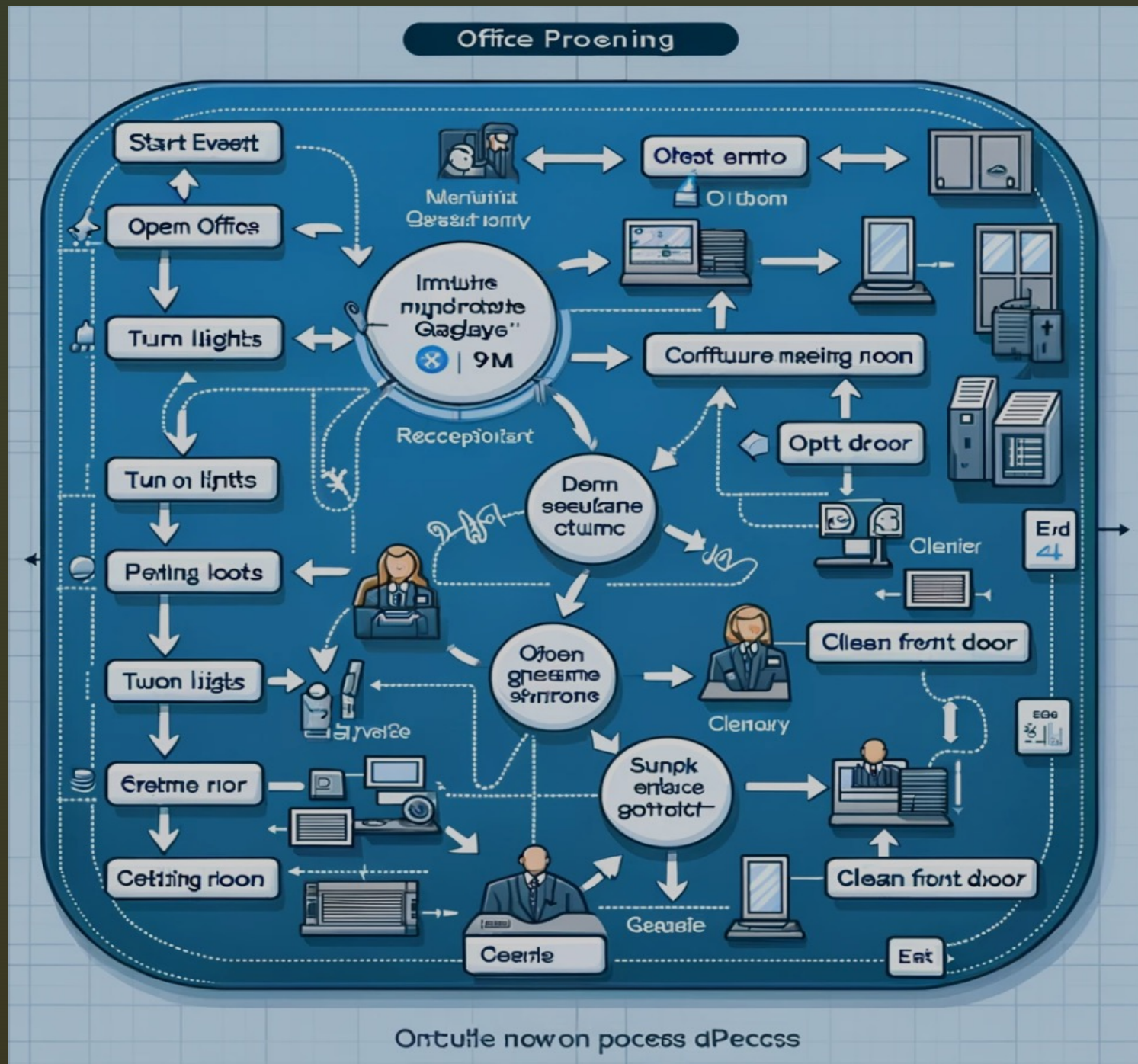
- add the sequence Flow to the diagram
- Get the Lanes right
- Pull it all together when it got complex....yet!

Another GPT – GPT-BPMN Builder

- GPT – BPMN Builder, Tellapally Sriya, 9 Mar 2024.



Can you convert
that diagram to
English?



GPT – BPMN Builder,
Tellapally Sriya, 9 Mar
2024.

Ask Flo about Model with Loop out of parallel section

i

In Flows for APEX, a parallel section starts from an splitting BPMN Parallel or Inclusive Gateway and continues to a Merging / Closing Parallel or Inclusive Gateway. Each path forward from a splitting gateway must either continue to its closing gateway or must proceed to its own end event. A subflow inside a parallel section cannot loop back to outside of the parallel section. Does this model meet this criteria?

To assess whether this model meets the specified criteria for handling parallel sections in Flows for APEX, we need to examine the structure and flow based on the provided BPMN (Business Process Model and Notation) XML content. The criteria for a well-structured parallel section in Flows for APEX are:

1. The parallel section starts from a splitting Parallel or Inclusive Gateway and ends at a merging/closing Parallel or Inclusive Gateway.
2. Each path from the splitting gateway either continues to its corresponding closing gateway or proceeds to its own end event.
3. A subflow inside a parallel section cannot loop back to outside of the parallel section.

Based on the provided model, here is the analysis:

- ****Start of the parallel section****: The parallel section starts with the Parallel Gateway ('Gateway_0h5znpg', named "Split"), which splits the flow into two paths.
- ****End of the parallel section****: The parallel section ends with the Parallel Gateway ('Gateway_1vx03pr', named "Merge"), which merges the two paths.

The paths are as follows:

- ****Path 1****: From "Split" ('Gateway_0h5znpg') through "B" ('Activity_0y9t1a0'), to the Exclusive Gateway ('Gateway_0rc9n1u', named "B Loop?"). From here, there are two possible flows:
- ****1a****: Going back to "B" ('Activity_0y9t1a0') through the sequence flow connected back to "B" after looping (this part doesn't meet the provided criteria because it loops back outside the parallel section, which is not allowed).
- ****1b****: Moving forward to the "Merge" ('Gateway_1vx03pr') Gateway.

- ****Path 2****: From "Split" ('Gateway_0h5znpg') through "C" ('Activity_0p2eyu8'), and then directly to the "Merge" Gateway ('Gateway_1vx03pr').

Both paths are intended to meet at the "Merge" Gateway, and then the flow continues to "D" ('Activity_0zf284g') and finally to an end event ("End" 'Event_0wunver').

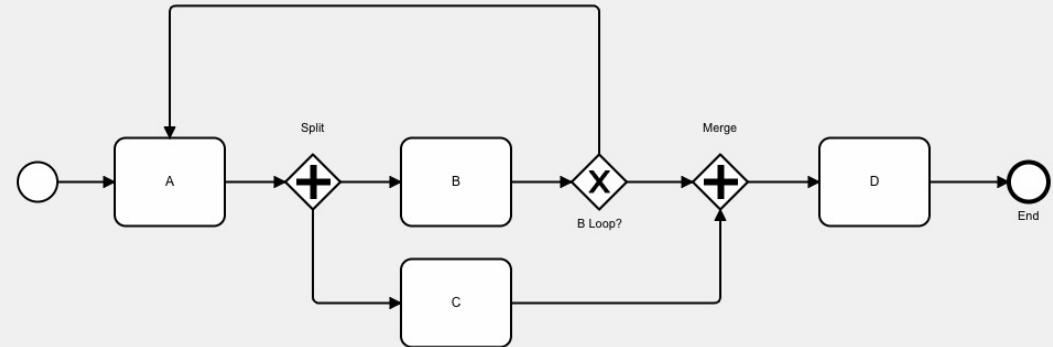
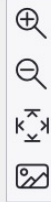
****Conclusion****:

This BPMN model **does not meet the criteria** specified for handling parallel sections in Flows for APEX due to the following reasons:

1. There is a subflow that loops back inside the parallel section, from "B Loop?" ('Gateway_0rc9n1u') back to "B" ('Activity_0y9t1a0'), which is against the rule that subflows inside a parallel section cannot loop back to outside of the parallel section.

Therefore, to rectify this model, the loop that goes outside and back into the parallel section needs to be removed or restructured so that it does not violate the outlined constraints.

Flow Viewer

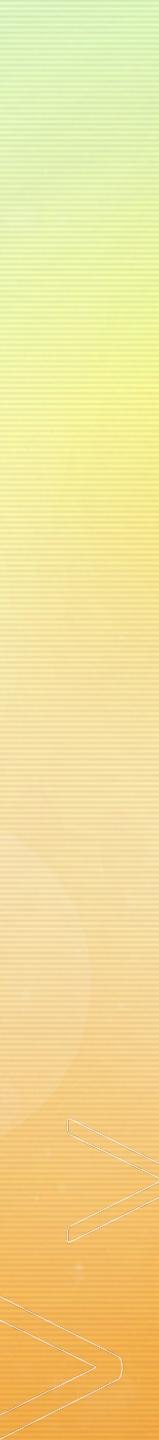


Next Steps – Before Shipping in Flows for APEX

- Currently using gpt-4 model using the chat/completions API through APEX REST Data Sources
- Next Step: Convert this to the threaded message API
 - Allows threaded conversation with more instructions built into the assistant, rather than being supplied as prompts.
- Explore creating GPT Assistant
 - Allows some extra files to be supplied containing F4A syntax, instructions, etc.
- Explore using, e.g., CrewAI to create several assistants with specific roles, working together.



One more demo...



Ask Flo about Open Office (JP)

Create a summary of this business process in DUTCH for a technical manager. Please give the Japanese and romanji names for the objects in parentheses.

Deze bedrijfsprocesbeschrijving omvat de ochtendroutine van het opstarten van een kantoor. Het proces is opgedeeld in taken die zijn gegroepeerd onder drie hoofdrollen: セキュリティ (Sekyuriti – Veiligheid), 受付 (Uketsuke – Receptie) en 清掃 (Seisō – Schoonmaak).

1. **Aankomst en Start**

– Het proces start met het aankomen op kantoor, gearriveerd door het **到着 (Tōchaku – Aankomst)** gebeurtenis.

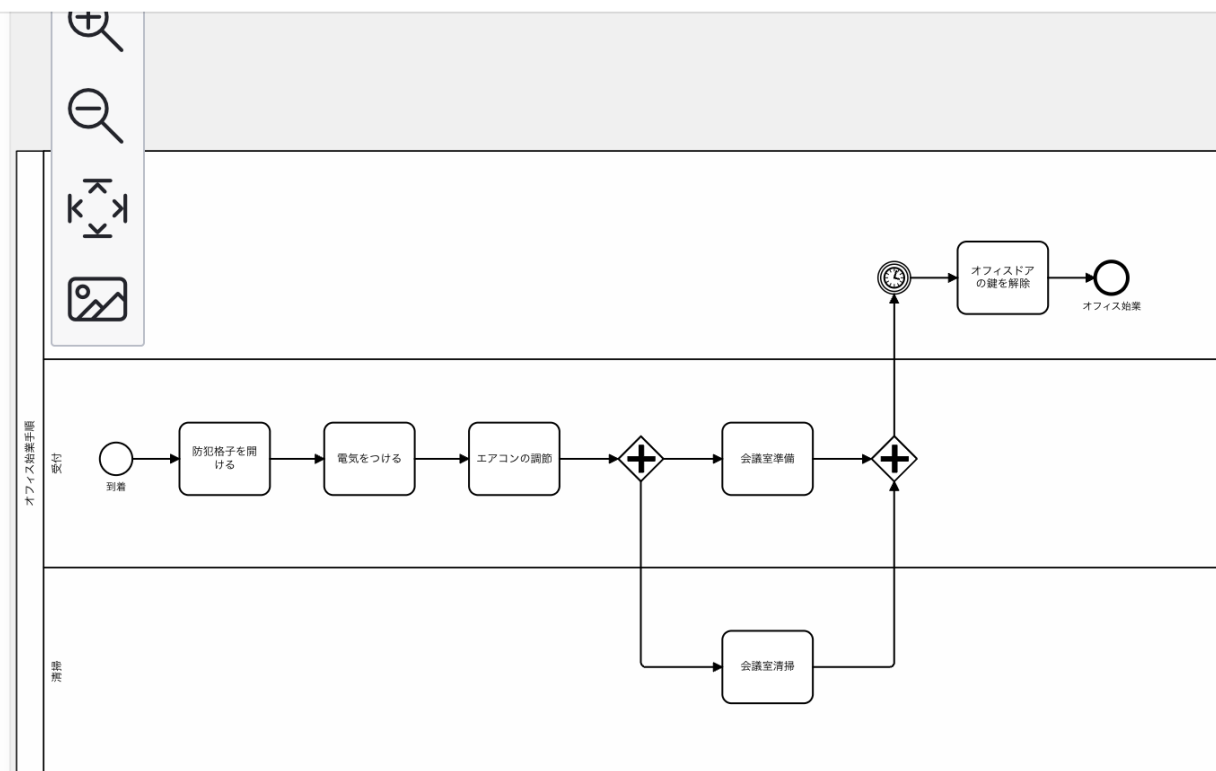
2. **Receptie (受付 – Uketsuke) Taken**:

– **防犯格子を開ける (Bōhan kōshi o akeru – Ontgrendelen van de veiligheidsgrills)**: Het eerste wat gedaan wordt na aankomst.

– **電気をつける (Denki o tsukeru – Licht aandoen)**: Na het openen van de veiligheidsgrills, worden de lichten ingeschakeld.

– **エアコンの調節 (Eakon no chōsetsu – Airconditioning afstellen)**: Vervolgens wordt de airconditioning afgesteld voor een comfortabele kantooromgeving.

– Deze taken leiden naar een **並行ゲートウェイ (Heikō Gētouei – Parallelle Gateway)** die twee processen initieert: voorbereiding van de vergaderzaal en schoonmaak.



Ask a question



Q & A



More info on Flows for APEX at www.flowsforapex.org
More questions? Email me at Richard@flowquest.consulting