

AI for the future of app development

Tiago Cardoso, AI Product Manager


September 18, 2023

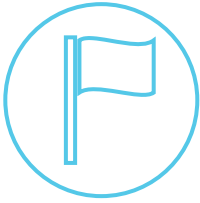
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Our focus today

- 
- ✓ App development & AI/ML
 - ✓ Build by prompt
 - ✓ Content AI for Supervised Autonomy



Founded
in 1991



Headquartered
in Westlake, Ohio



4,500+
employees



25+ offices
worldwide

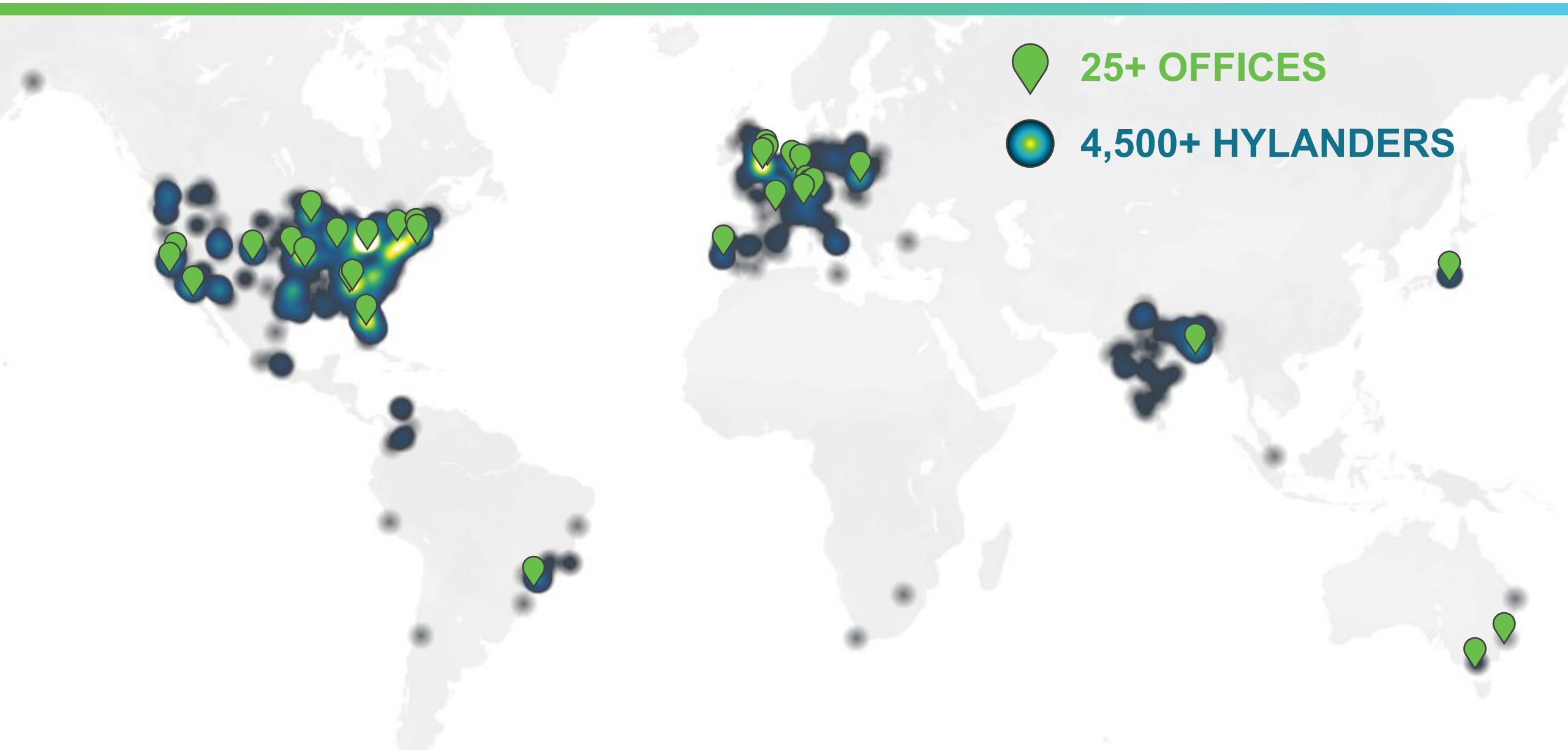


14,000
customers



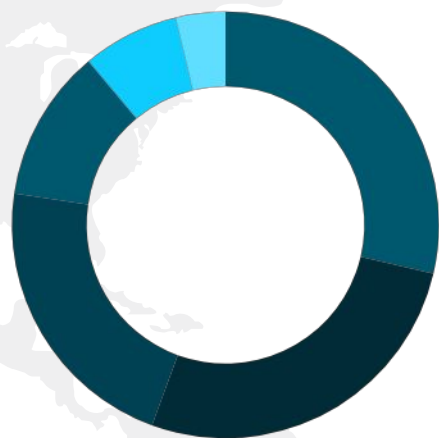
475+
partners

WHERE WE ARE



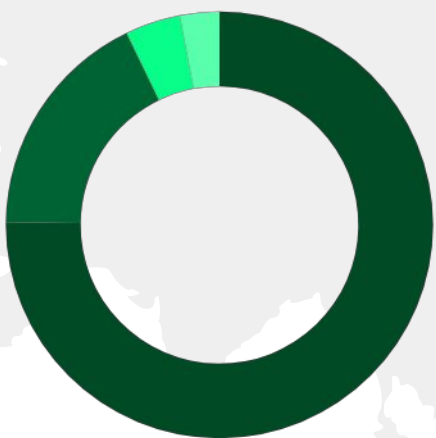
HYLAND CUSTOMERS

BY INDUSTRY



| | | |
|--------------------|-----|---------------|
| Cross Industry | 29% | 4,174 |
| Healthcare | 27% | 3,920 |
| Financial Services | 21% | 3,169 |
| Government | 12% | 1,683 |
| Education | 7% | 1,066 |
| Insurance | 4% | 546 |
| TOTAL | | 14,498 |

BY REGION



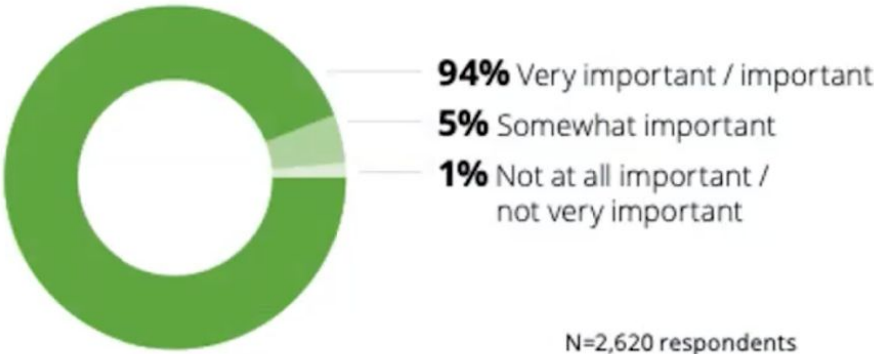
| | | |
|-------|-----|---------------|
| USCAN | 75% | 10,901 |
| EMEA | 16% | 2,555 |
| LATAM | 4% | 606 |
| APAC | 3% | 432 |
| TOTAL | | 14,498 |

Back to the agenda

AI TRENDS IN THE MARKET

94% of business leaders surveyed agree that AI is critical to success over the next five years. Yet as organizations deploy more AI, outcomes appear to be lagging.

Importance of AI solutions for organizations' overall success



N=2,620 respondents

Outcomes—"Achieved to a high degree"



N=2,620 respondents

The economic potential of generative AI

- Generative AI's impact on productivity could add the equivalent of **\$2.6 trillion to \$4.4 trillion** annually
- About **75% of the value** that generative AI use cases could deliver falls across four areas: *Customer operations, marketing and sales, software engineering, and R&D*
- Current generative AI and other technologies have the potential to automate work activities that absorb **60 to 70 percent of employees' time** today.



App development & AI/ML.

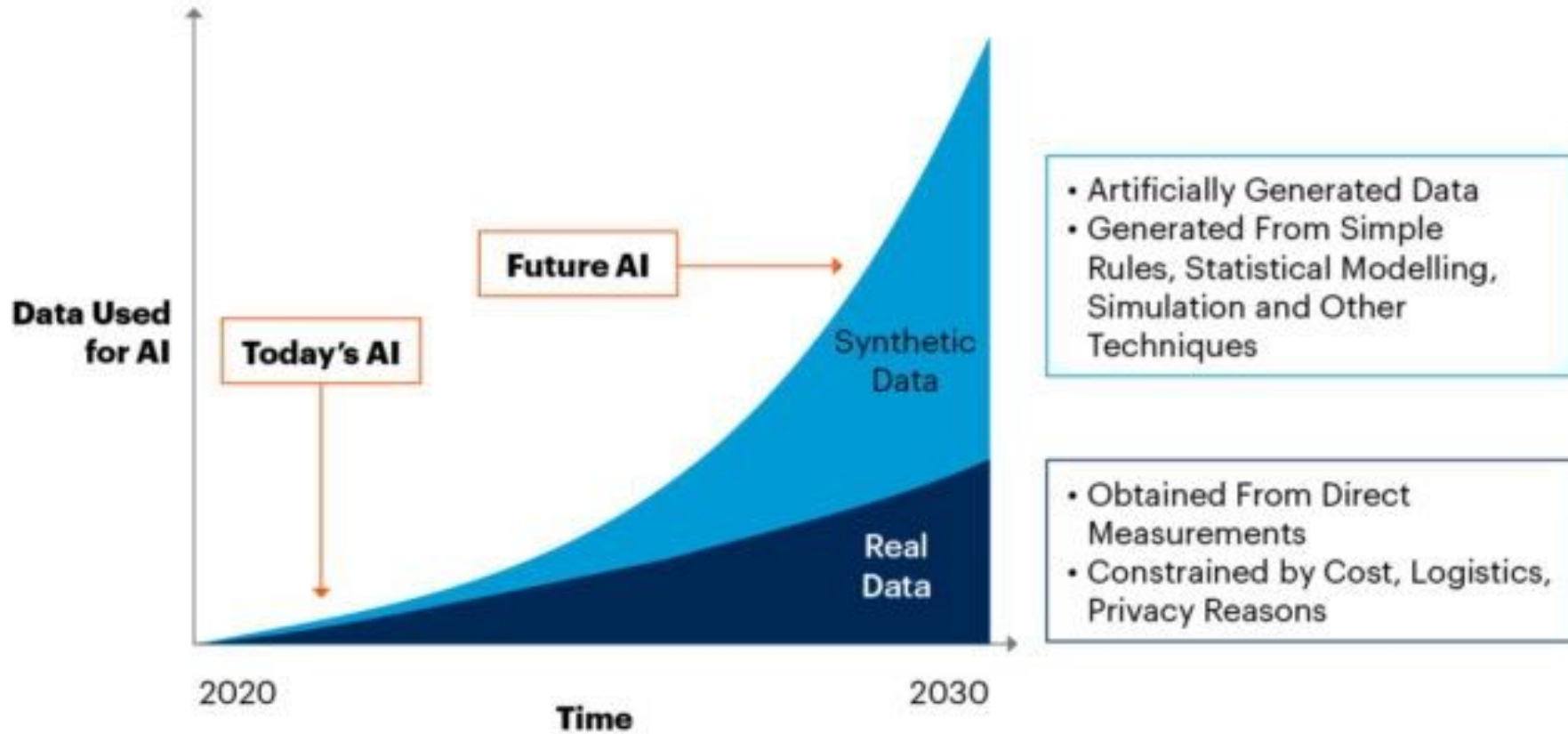
What the future reserves for low-code applications?

"Synthetic data is crucial for low-code development because it allows quick testing and validation, mitigating the potential risks associated with using real, sensitive data."

Andrew Ng,
Co-founder of Google Brain
(genAI quote, not real)

Synthetic data

By 2030, Synthetic Data Will Completely Overshadow Real Data in AI Models



Source: Gartner
750175_C

Synthetic data for Privacy and security

PII masking for images

- Change viewable faces into virtual non-existing faces
- Analogous to PII masking in documents



"Integrating ML models with low code applications can greatly improve efficiency, accuracy, and productivity. These platforms are designed to be more user-friendly and accessible, enabling even those without a background in coding or software development to create and implement algorithms that greatly advance their business objectives."

John Rymer,
Forrester Analyst
(geneAI quote, not real)

Filter Tasks by name

Multimodal

- Feature Extraction
- Text-to-Image
- Image-to-Text
- Visual Question Answering
- Document Question Answering

Computer Vision

- Image Classification
- Object Detection
- Image Segmentation
- Image-to-Image
- Depth Estimation
- Unconditional Image Generation
- Zero-Shot Image Classification

Natural Language Processing

- Text Classification
- Text2Text Generation
- Text Generation
- Token Classification
- Question Answering
- Fill-Mask
- Translation
- Summarization
- Sentence Similarity
- Conversational
- Zero-Shot Classification
- Table Question Answering

Audio

- Automatic Speech Recognition
- Audio Classification
- Text-to-Speech
- Audio-to-Audio
- Voice Activity Detection

Tabular

- Tabular Classification
- Tabular Regression

Reinforcement Learning

- Reinforcement Learning
- Robotics

Models 43,893

Filter by name

new Full-text search

Sort: Trending

openai/whisper-large-v2
Automatic Speech Recognition • Updated 10 days ago • 145k • 1.05k

tiiuae/falcon-7b
Text Generation • Updated 19 days ago • 307k • 840

sentence-transformers/all-MiniLM-L6-v2
Sentence Similarity • Updated Nov 7, 2022 • 2.43M • 916

tiiuae/falcon-7b-instruct
Text Generation • Updated Jul 13 • 237k • 641

tiiuae/falcon-40b
Text Generation • Updated 13 days ago • 103k • 2.27k

h94/IP-Adapter
Text-to-Image • Updated 10 days ago • 77

PY007/TinyLlama-1.1B-Chat-v0.1
Text Generation • Updated about 11 hours ago • 14

GanymedeNil/text2vec-large-chinese
Sentence Similarity • Updated Aug 5 • 71.1k • 602

google/flan-t5-base
Text2Text Generation • Updated Jul 17 • 8.15M • 336

TencentARC/t2i-adapter-canny-sdx1-1.0
Image-to-Image • Updated 11 days ago • 4k • 17

Deci/DeciCoder-1b
Text Generation • Updated 4 days ago • 8.4k • 206

PY007/TinyLlama-1.1B-step-50K-105b
Text Generation • Updated 3 days ago • 7.43k • 98

CofeAI/FLM-101B
Text Generation • Updated about 11 hours ago • 62 • 63

guoyww/animatediff
Updated 8 days ago • 58

bert-base-uncased
Fill-Mask • Updated Jun 30 • 40.9M • 1.09k

FlagAlpha/Llama2-Chinese-13b-Chat
Question Answering • Updated 7 days ago • 4.88k • 184

sentence-transformers/all-mpnet-base-v2
Sentence Similarity • Updated Jul 11, 2022 • 9.29M • 365

ibm/MoLM-700M-8B
Text Generation • Updated 4 days ago • 4 • 13

TencentARC/t2i-adapter-sketch-sdx1-1.0
Image-to-Image • Updated 10 days ago • 6.72k • 18

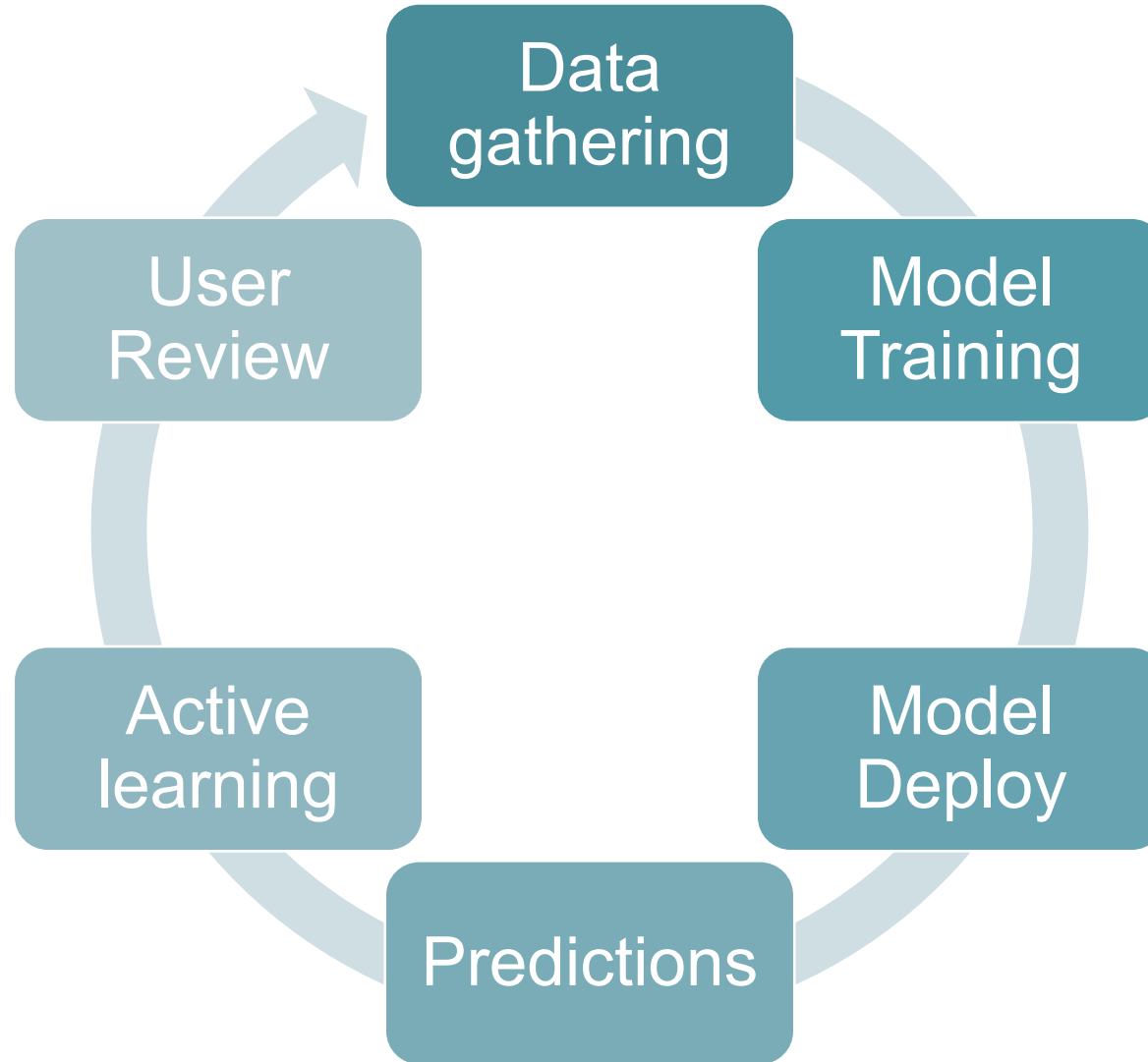
tiiuae/falcon-40b-instruct
Text Generation • Updated Jul 13 • 321k • 1.08k

bert-base-multilingual-cased
Fill-Mask • Updated Nov 16, 2022 • 2.82M • 228

PY007/TinyLlama-1.1B-intermediate-step-240k-503b
Text Generation • Updated about 8 hours ago • 9

Open Machine Learning Models

ML Model Lifecycle



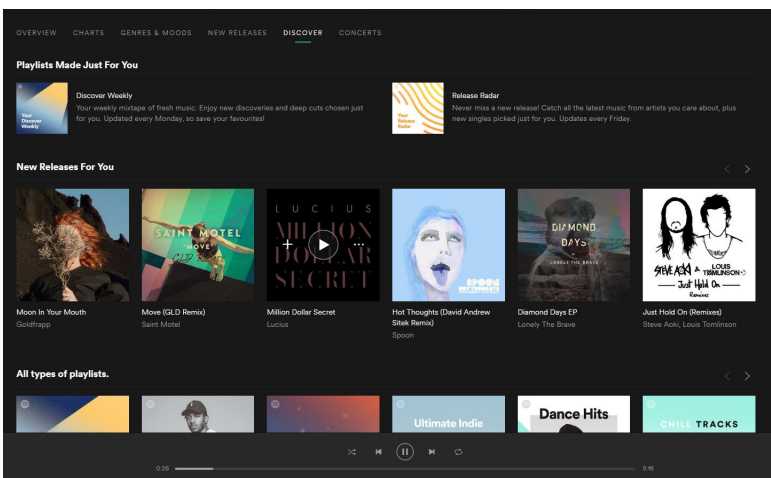
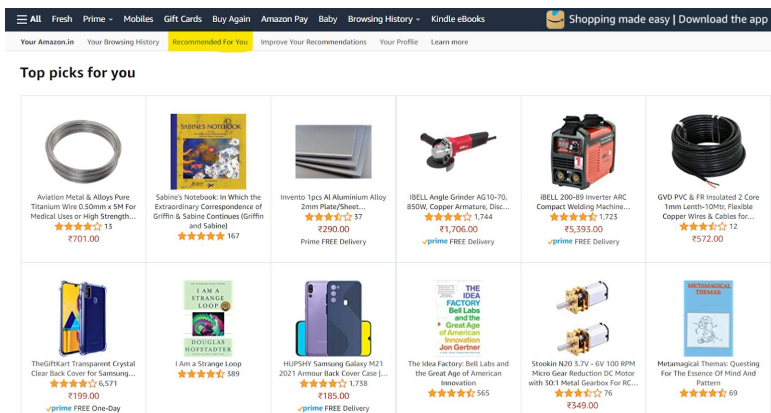
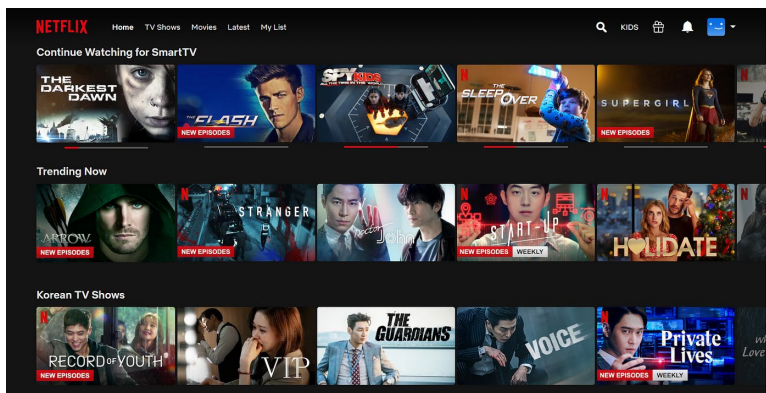
"As artificial intelligence advances, we see a shift towards a more personalized and efficient user experience. AI will take UX to the next level, providing interfaces that can adapt to individual users' behavior. The idea is to deliver a UX that is intuitive, frictionless, and even pleasurable to the user in ways we have not seen before,"

Brian Solis,
Futurist
(geneAI quote, not real)








Recommendation

NETFLIX

amazon



Best next action

| | Past Touchpoints | Next Touchpoint | Probability of Sale | |
|------------|---|--|---------------------|-----------|
| Customer A |   |  | 35% | |
| | |  | 55% | Segment 1 |
| | |  | 37% | Segment 2 |
| | |  | 25% | Segment 3 |
| | |  | 15% | |

AI for building



- Code completion
 - GitHub Copilot, Amazon CodeWhisperer
- Configuration recommendations
 - Mendix Assist : MxAssist Logic Bot
- Chatbots
- Predictive Analytics Tools

Build by the prompt

How Generative AI and LLMs can solve some complex applications' behaviors

Prompt the data model

USER Bank card, including prepaid, credit and debit data model.

ASSISTANT

```
```mermaid
classDiagram
 class BankCard{
 +CardNumber:string
 +CardHolder:string
 +ExpiryDate:Date
 +CVV:string
 }
 class PrepaidCard{
 +Balance:double
 }
 class CreditCard{
 +CreditLimit:double
 +CurrentDebt:double
 }
 class DebitCard{
 +AccountBalance:double
 }
 BankCard <|-- PrepaidCard
 BankCard <|-- CreditCard
 BankCard <|-- DebitCard
```
```

Generate the data model

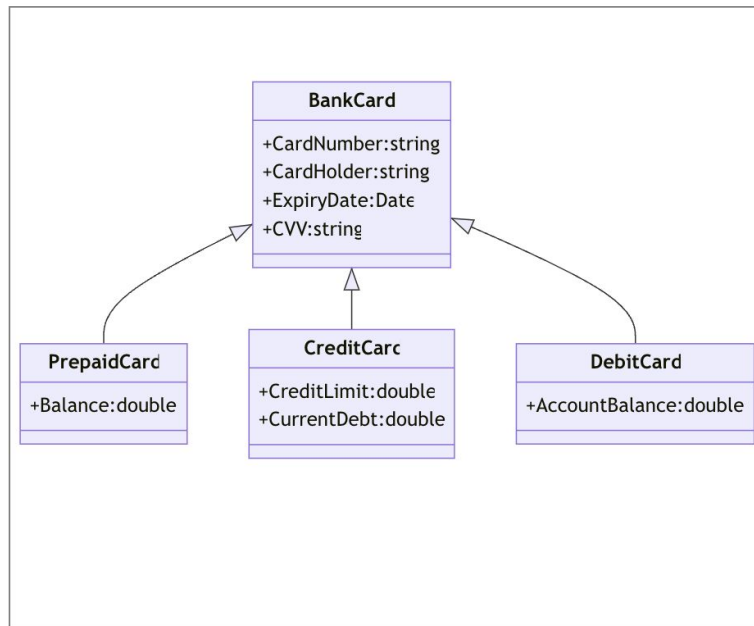
USER Bank card, including prepaid, credit and debit data model.

ASSISTANT ```mermaid
classDiagram
class BankCard{
+CardNumber:string
+CardHolder:string
+ExpiryDate:Date
+CVV:string
}
class PrepaidCard{
+Balance:double
}
class CreditCard{
+CreditLimit:double
+CurrentDebt:double
}
class DebitCard{
+AccountBalance:double
}
BankCard <|-- PrepaidCard
BankCard <|-- CreditCard
BankCard <|-- DebitCard
```

Language: **Mermaid** ▾

Sample: **Class diagram** ▾

```
classDiagram
class BankCard{
+CardNumber:string
+CardHolder:string
+ExpiryDate:Date
+CVV:string
}
class PrepaidCard{
+Balance:double
}
class CreditCard{
+CreditLimit:double
+CurrentDebt:double
}
class DebitCard{
+AccountBalance:double
}
BankCard <|-- PrepaidCard
BankCard <|-- CreditCard
BankCard <|-- DebitCard
```



Cancel

OK

# Generate the architecture

Language: C4 with PlantUML ▾

Sample: <Not available> ▾

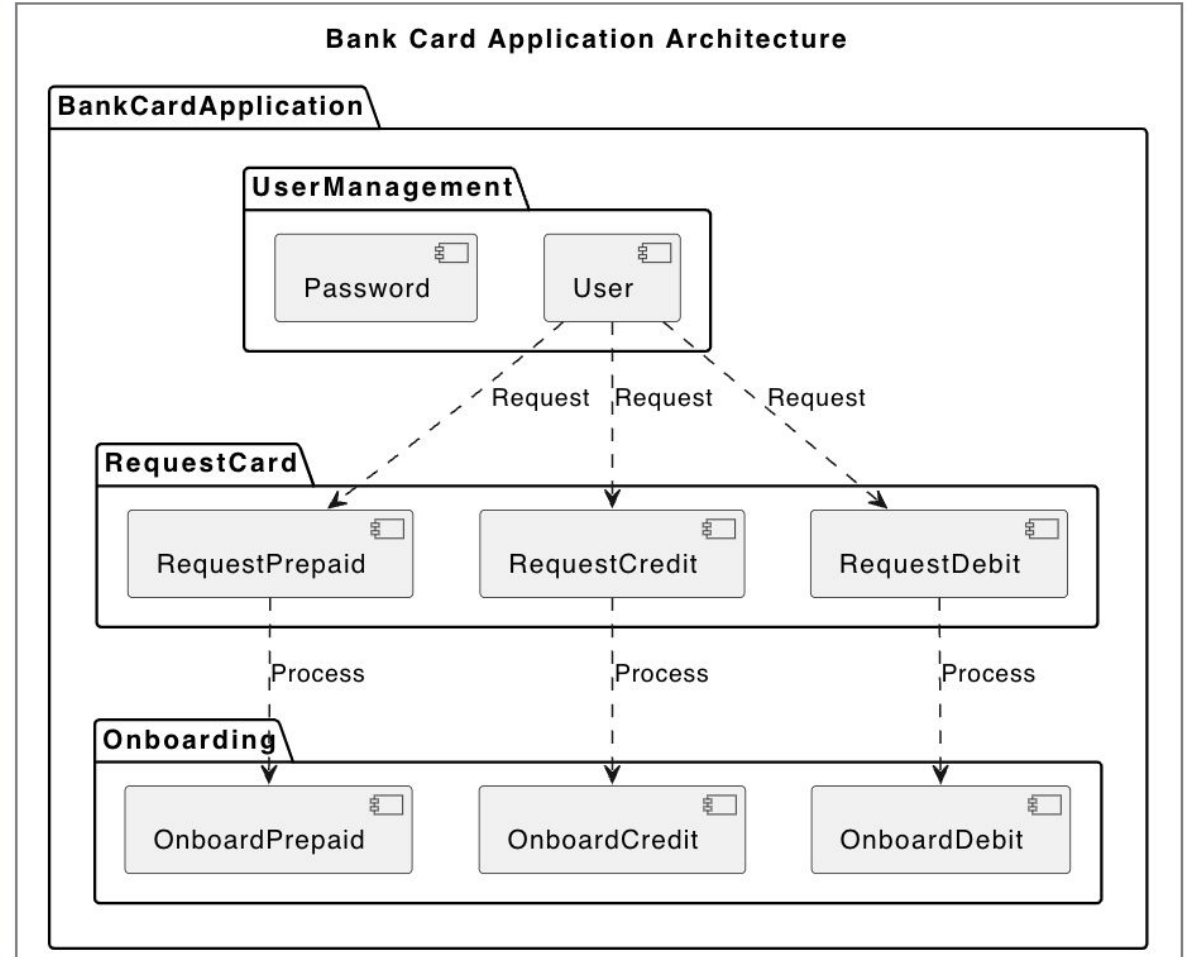
```
@startuml
title "Bank Card Application Architecture"

package BankCardApplication {
 package UserManagement {
 [User]
 [Password]
 }

 package Onboarding {
 [OnboardPrepaid]
 [OnboardCredit]
 [OnboardDebit]
 }

 package RequestCard {
 [RequestPrepaid]
 [RequestCredit]
 [RequestDebit]
 }
}

[User] ..> [RequestPrepaid] : Request
[User] ..> [RequestCredit] : Request
[User] ..> [RequestDebit] : Request
```





# Prompt requirements

## **Please model the following process**

If goods shall be shipped, the secretary clarifies who will do the shipping. If you have large amounts, special shipping will be necessary. In these cases the secretary invites three logistic companies to make offers and she selects one of them. In case of small amounts, normal post shipment is used. Therefore a package label is written by the secretary and a parcel insurance taken by the logistics department head if necessary.

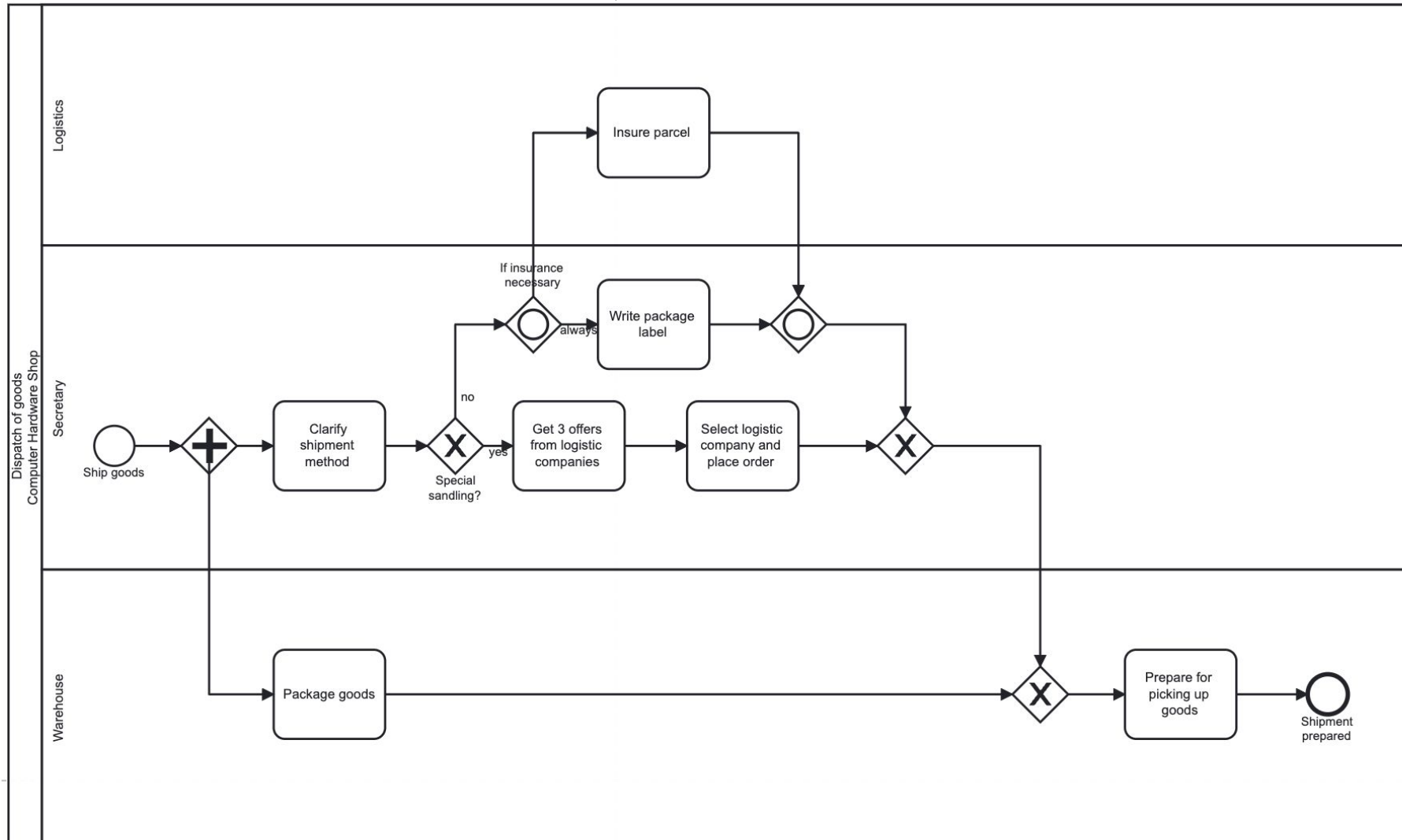
In the meantime the goods can be already packaged by the warehousemen.

If everything is ready, the packaged goods are prepared for being picked up by the logistic company.

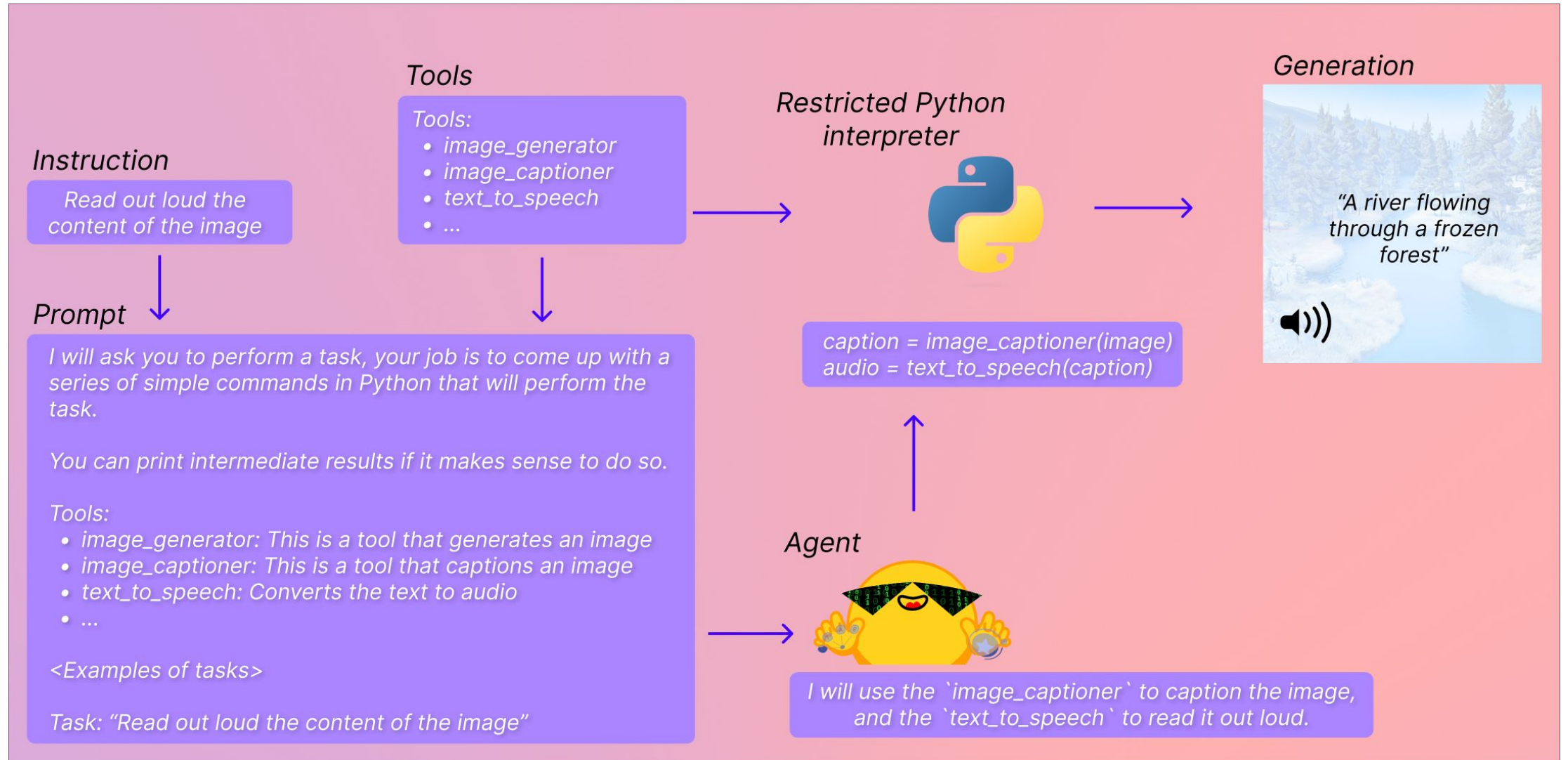
## **Background**

This process happens at a small hardware company that ships small amounts of goods to end customers but as well big amounts to other shops.

# Generate the business logic



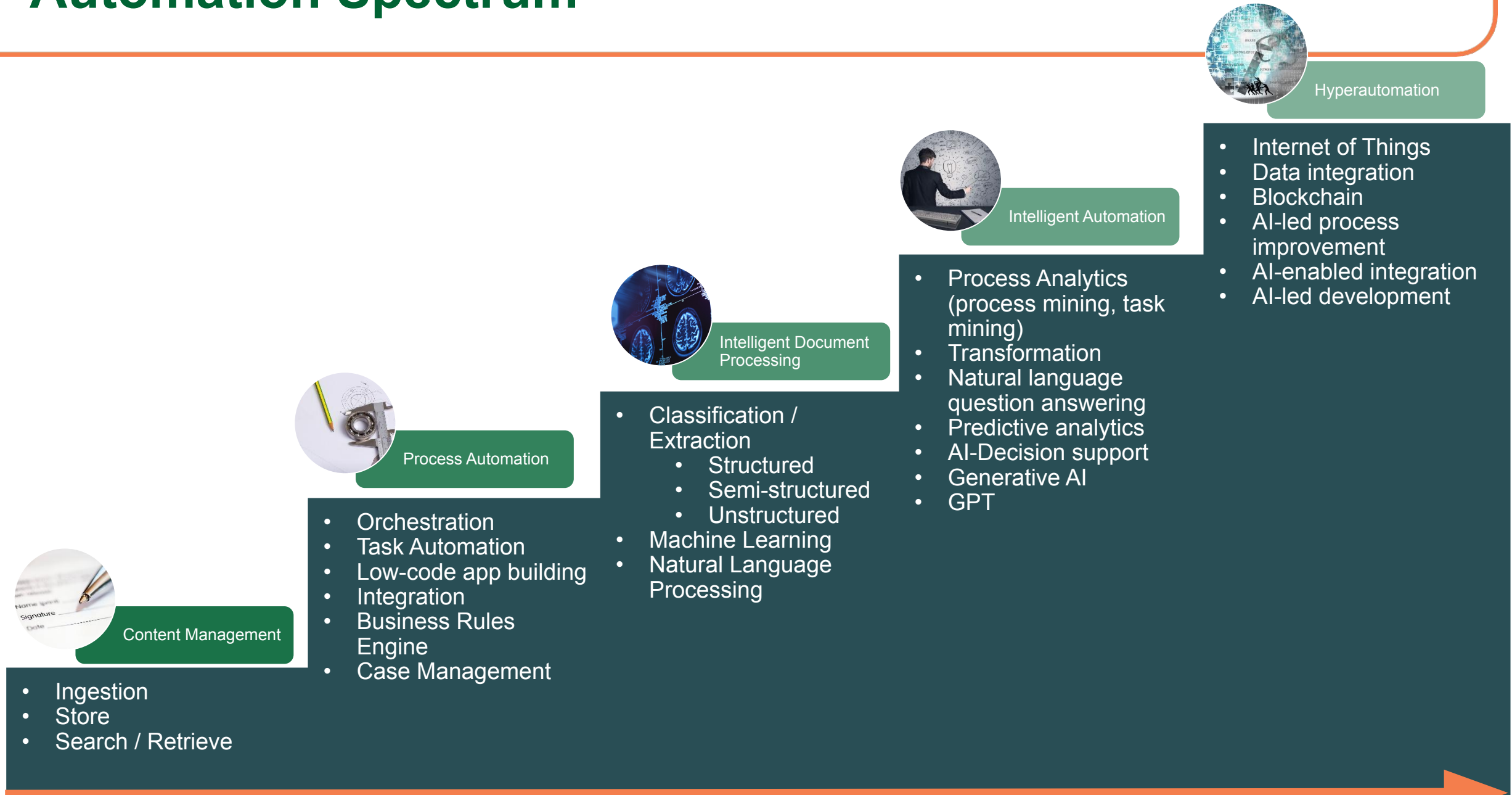
# Generate connectors and addons usage



# Content AI for Supervised Autonomy

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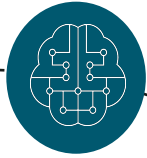
# Automation Spectrum



# Intelligent Content Automation

## AI-enhanced content

harness the power of artificial intelligence to transform traditional data and documents into dynamic, insightful and actionable assets



## Decision-making

leverage AI-driven insights to guide and automate the most effective actions, enhancing the efficiency, accuracy and agility of business processes



## End-to-end automation

go beyond classical task automation and focus on end-to-end automation



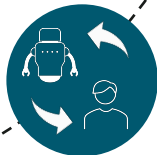
## Cloud service integration

seamlessly integrate advanced functionalities and data accessibility from the cloud



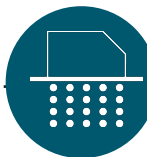
## User and bot integration

foster a collaborative ecosystem where human expertise and automated capabilities synergize to streamline tasks, enrich decision-making



## Capture

automate document separation and multi-channel capture of paper and digital content



## KEY BENEFITS

- **Enhanced decision-making**  
AI-driven insights extracted from content enable better decisions
- **Operational efficiency**  
Reduce manual intervention
- **Security and compliance**  
Reduce risk and improve auditability by minimizing human touch
- **Customer experience**  
personalized and timely content delivery, tailored experiences

“

OCR was key, but most solutions cannot read documents in 96 dpi resolution. We also needed something capable of managing the rules engine, content store, process orchestration and security — which was also crucial as we are dealing with medical and health data. We compared around 15 different solutions and Hyland's Alfresco was the only one that ticked all the boxes.”

”

**Heidi Badenhorst**

Group Head of Strategy and Special Projects  
aYo

# SUPERVISED AUTONOMY

Leverage the power of AI to deliver fully autonomous experiences and applications that streamline content and process management. While critical actions and decisions require human oversight, our vision seeks to maximize customer efficiency and productivity while improving decision-making capabilities. Customers will be able scale to their execution, enhance their decision-making, and gain the peace of mind that comes with human supervision for critical actions. This is a significant step forward for businesses seeking to optimize their operations and enhance their competitive edge.

## KEY FEATURES

### Document reasoning

Able to fully ingest and process any document or asset. Map its elements into business knowledge and reason within the full existing content corpora.

### Communication

Interact with customers and partners. Flawless communicative skills to provide decisions, requests and knowledge according to business goals and reasons.



### Explainability

Capable to explain all decisions. Remove system noise and bias while providing clear data and content driven to justify all outputs and resolutions.



### Adaptivity

Capacity to learn from its experiences and adapt to changing business environments. Agility to rapidly improve its reasoning according to new data, content or interactions.



## WHY SUPERVISED?

### Regulation

MOST INDUSTRIES WILL ENFORCE REGULATION FOR HUMANS IN THE LOOP.

### Governance

DOMAIN-SPECIFIC REQUIREMENTS FOR SECURITY AND ACCESS.

### Bias

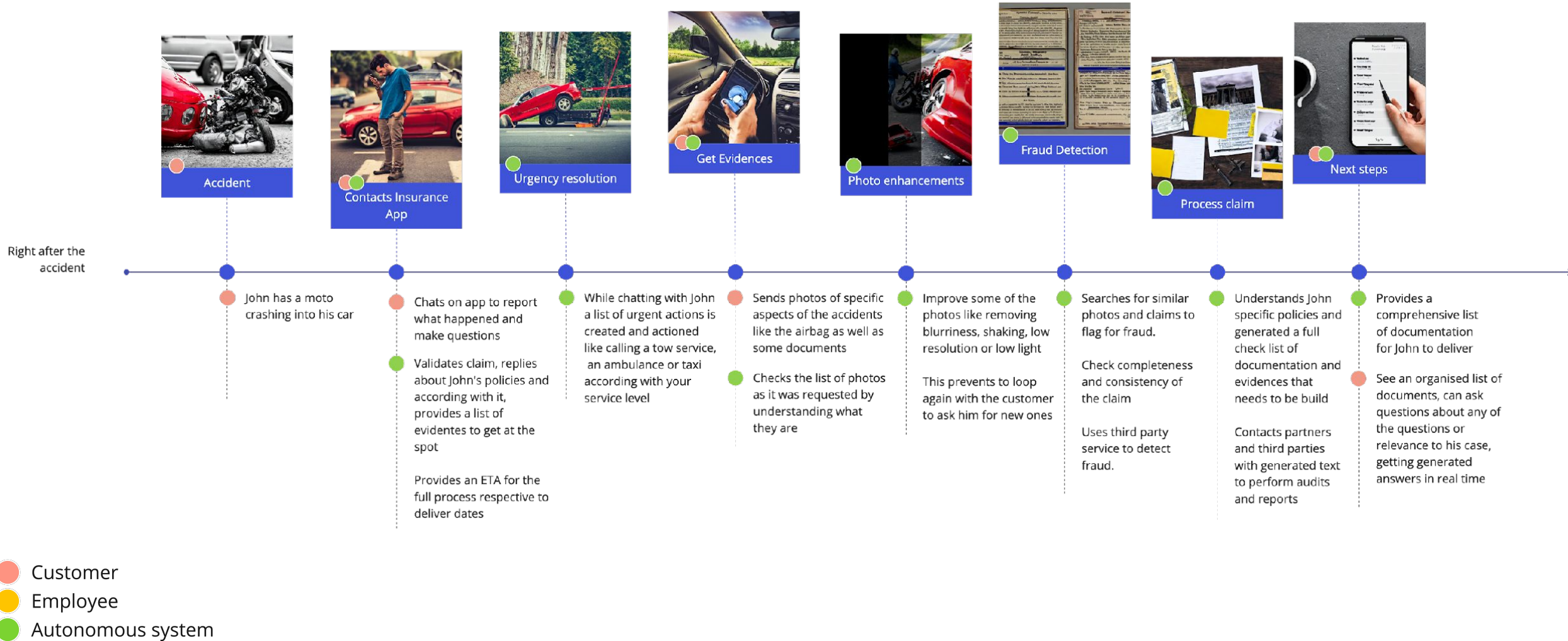
AI MIGHT GENERATE BIAS OVER TIME. NEEDS HUMAN AUDITING.

### Democracy

PEOPLE SHOULD CONTINUE TO HAVE CRITICAL DECISION POWER.

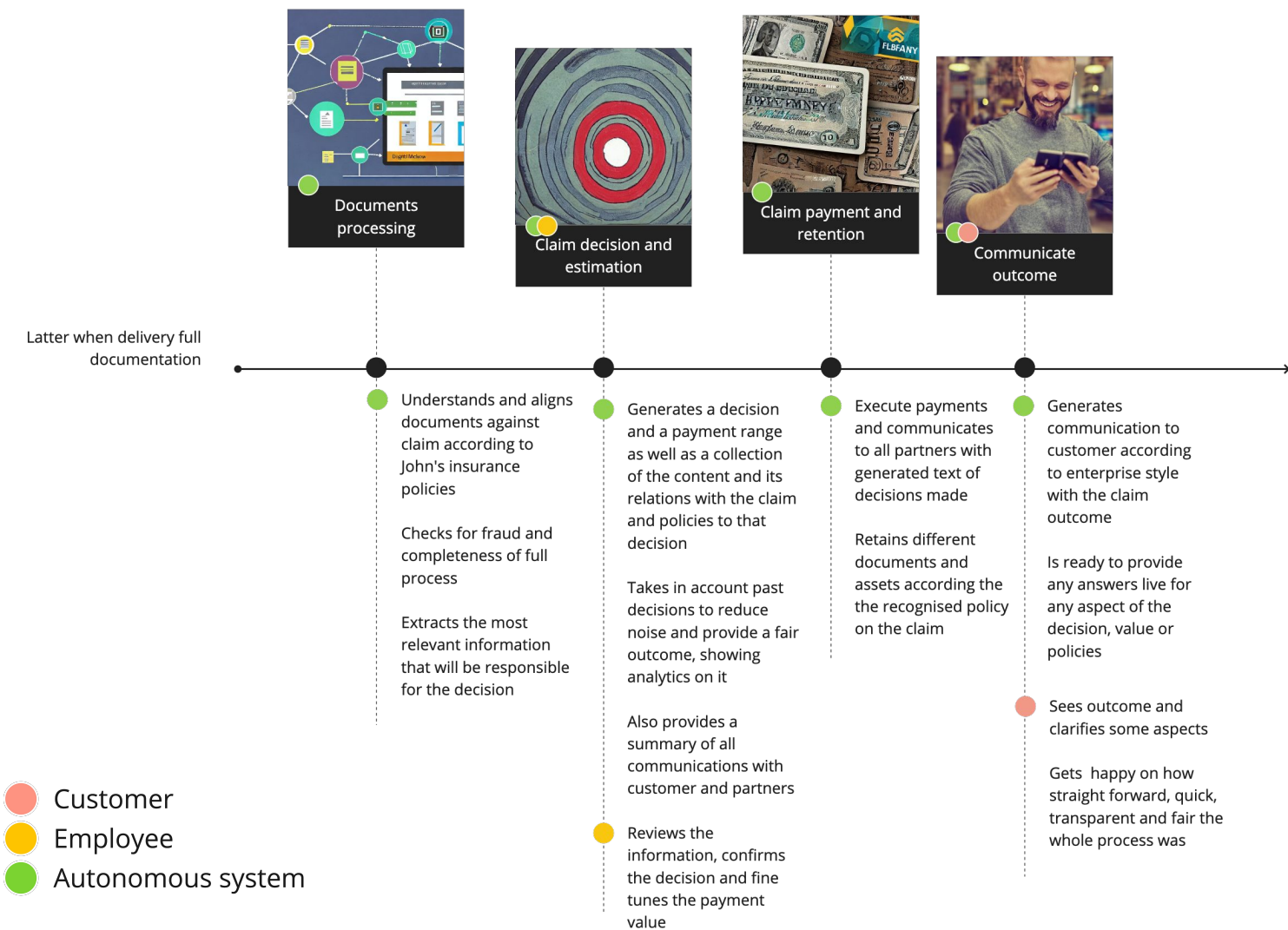


# Claim Management Case

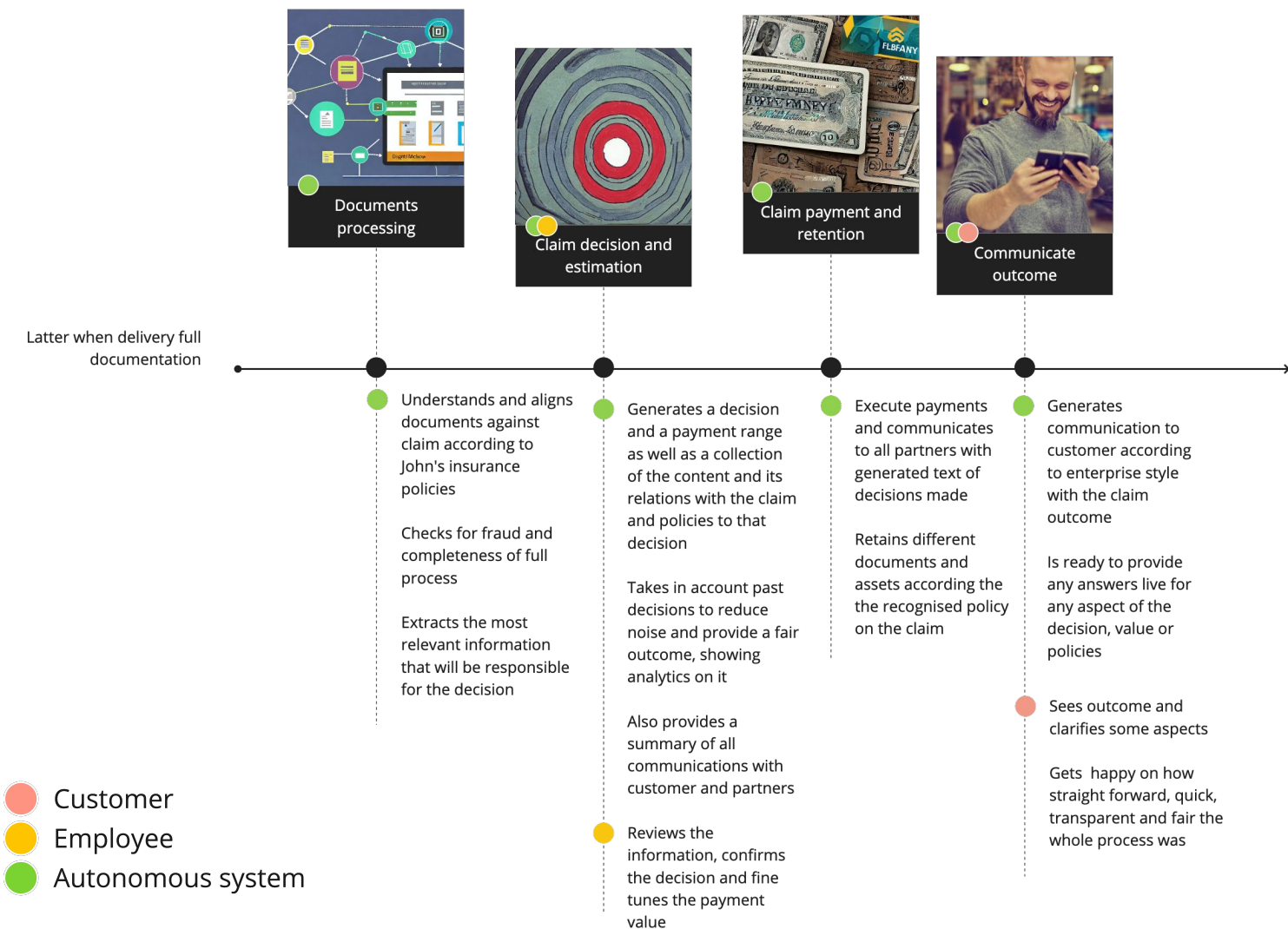




# CLAIM MANAGEMENT CASE



# CLAIM MANAGEMENT CASE



## Highlights

### 1 employee task

Employee intervention in the whole process. Only for supervision.

### 100% Clarity

AI can answer any question regarding customer insurance policy or the present claim.

### Minimal Noise & Bias

Decision and outputs are guardrails so that outcomes are consistent and CX is fair.

### Zero-touch IDP

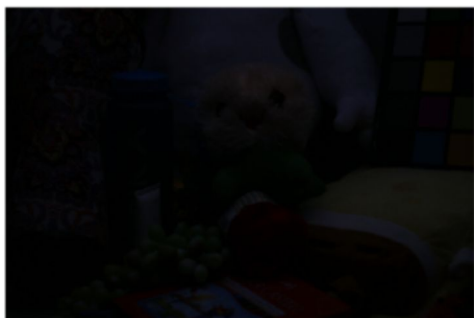
All documents are capture, process and reason on with no

### 100% compliance

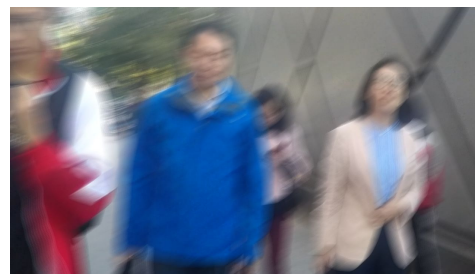
All regulations and retain policies are fully done according with the latest regulations automatically.

# Next-gen renditions

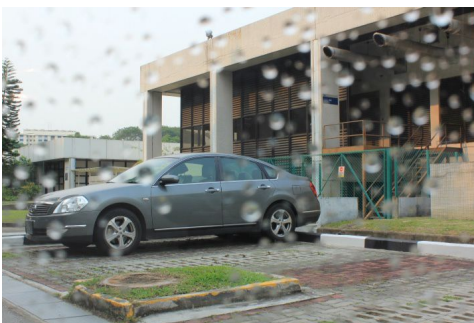
**Low Light**



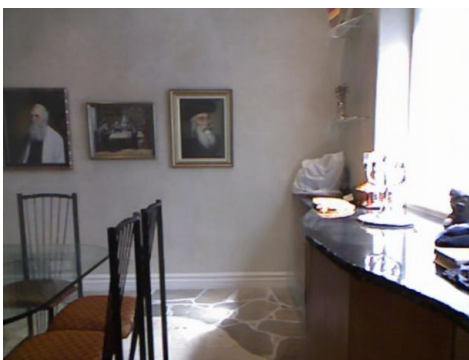
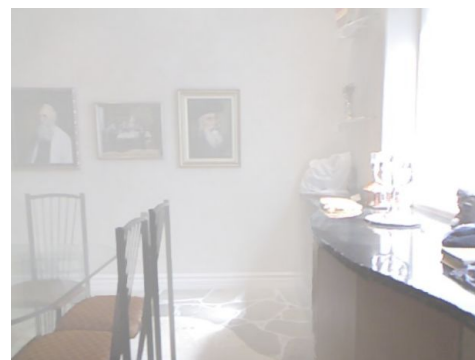
**Blurry**



**Rain drops**



**Haize**



# Content relation reasoning

Does this proposal check all the requirements of a specific regulation?

- LLM extracts a list of requirements from a regulation
- Validates proposal documents against the list
- Explains what is missing, how and where



Proposal documents



# Tailored Communication

## Write an email to a customer about a claim decision

- LLM reads facts and data
- Communicates using an organization style



Claim process data  
and decisions



Generates e-mail





Thank you!

[tiago.cardoso@hyland.com](mailto:tiago.cardoso@hyland.com)