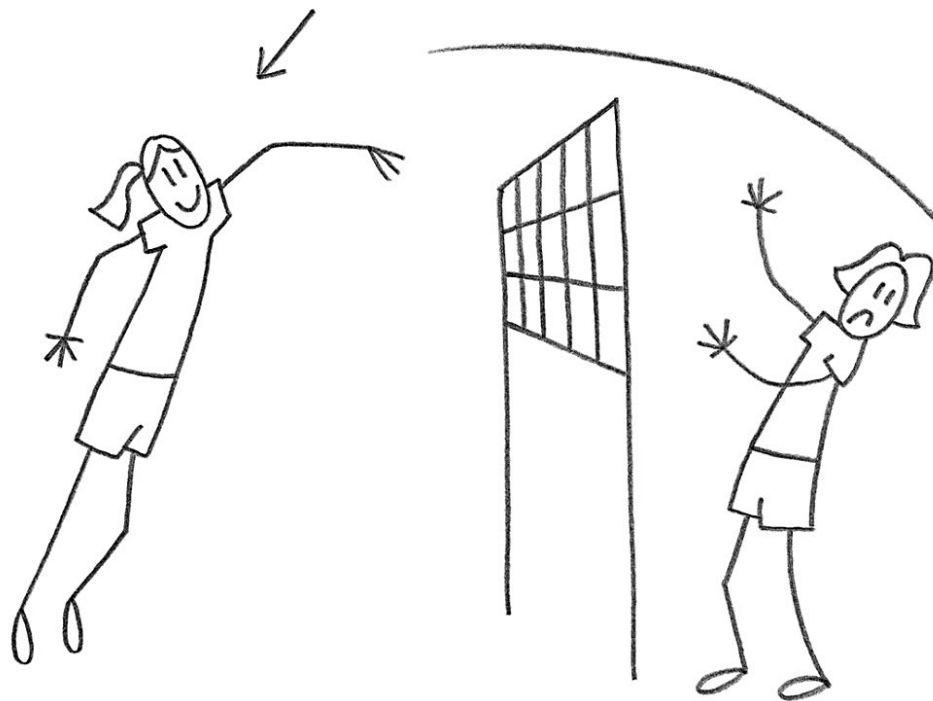




# Thriving Through Customers – How to Automate Feedback Processes with Large Language Models

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Guter Service



Schlechter Service

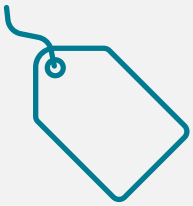


## The Three Components of Information in Our Feedback

"We feel that the customer representative did not provide us with adequate advice.  
Could we please receive an overview of the different product customization options?"

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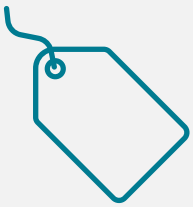
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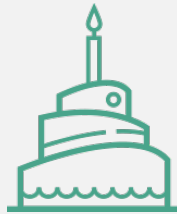
**Topics**

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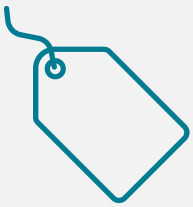
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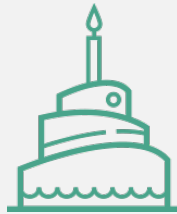
**Request**

# The Three Components of Information in Our Feedback

“We **feel** that the **customer representative** did **not provide us with adequate advice**.  
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**Topics**



**Request**



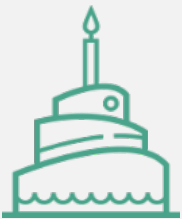
**Sentiment**

# One Model for Every Component



## Topics

- What is the content of the feedback?
- Multi-label classification: 22 topics such as quotation, invoice, claim, termination, premium and process and 7 insurance products



## Request

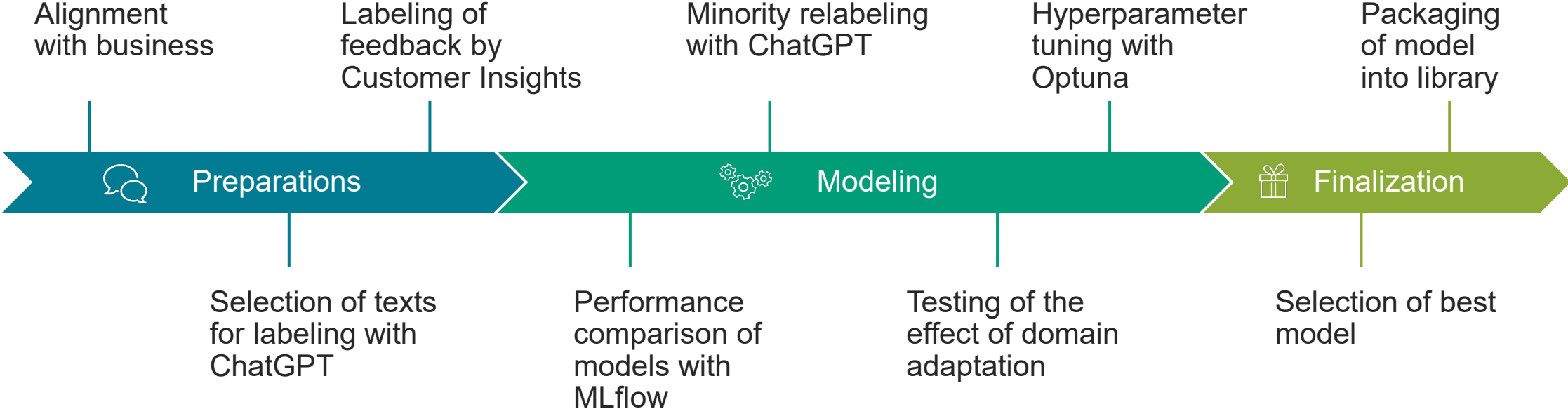
- Does the client have a request? Is there a need for action?
- Single-label classification: no request, wish for future with no need for action or request with need for action



## Sentiment

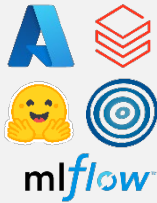
- Is there an underlying negative sentiment in the feedback?
- Binary classification: negative, not negative

# Modeling Process





# Let's Talk About Model Performance



## Development setup

- Running on different Azure ML or Azure Databricks computes
- We use MLflow and Optuna for logging and hyperparameter optimization



## First steps with baseline models

- Very decent results with pre-trained models and zero-shot approaches
- Some limitations such as wrongly classified feedback with “claim” keyword



## Fine-tuning yields the best results

- Consider switching from GPU to CPU to improve performance
- Be aware of the conflicting priorities of your stakeholders

## DistilBERT (zero-shot)<sup>1</sup>

Label	Prc	Rec	F1
Positive / Neutral	0.80	0.83	0.82
Negative	0.81	0.78	0.80

## XLM-RoBERTa (fine-tuned)<sup>1</sup>

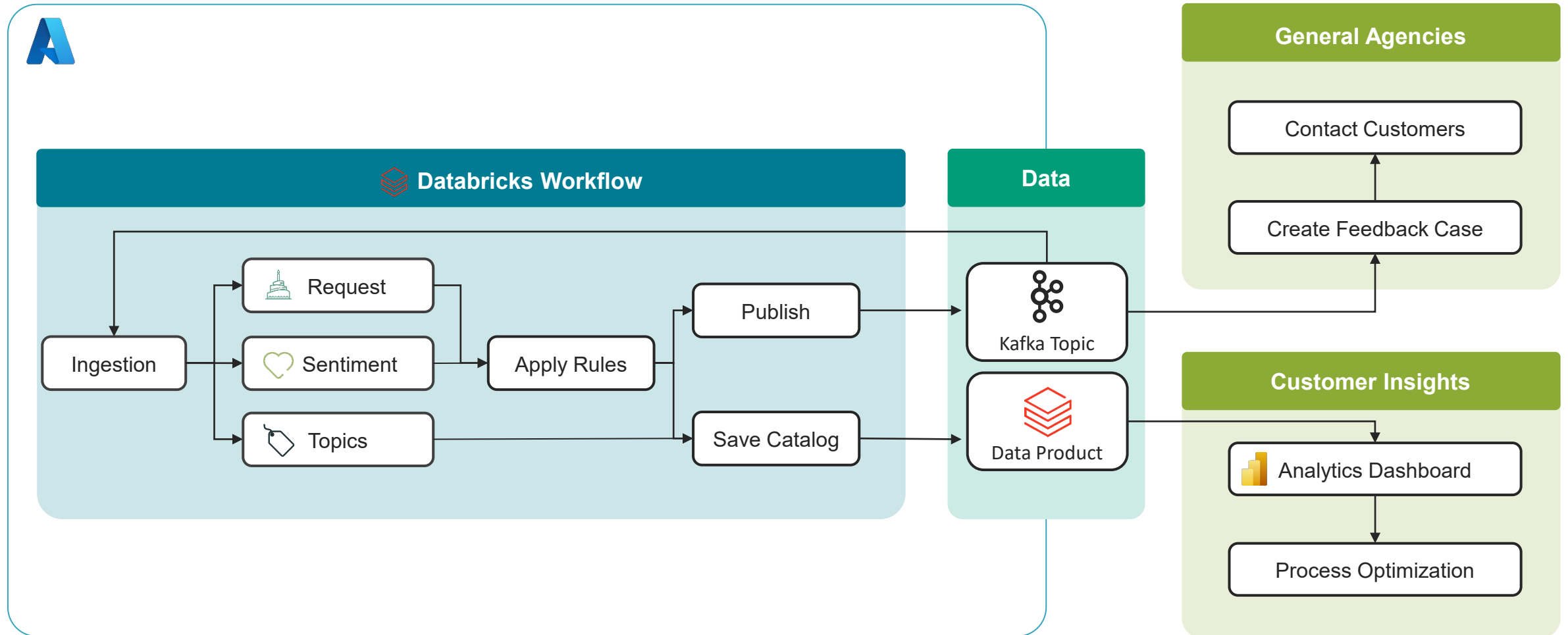
Label	Prc	Rec	F1
Positive / Neutral	0.87	0.94	0.90
Negative	0.92	0.84	0.88

## mDeBERTa (fine-tuned)<sup>1</sup>

Label	Prc	Rec	F1
Positive / Neutral	0.92	0.97	0.94
Negative	0.96	0.91	0.94

<sup>1</sup> metrics for sentiment model

# Business Process



# Added Value



*The automated detection of customer concerns and questions enables us to respond promptly and contact the client within 24 hours.*



Customer Insights



## Detect trends with an analytics dashboard

- Added value through combination of the three models
- Monitor improvements or declines in products and processes over time



## Open customer feedback case

- React promptly to relevant cases while respecting the agents' limited time
- Serve our customers' needs quickly and competently



## Make la Mobilière even more data addicted

- Promote data-driven processes further within the company

# Key Takeaways



## Recognize the importance of labeling

- The principle of dual control is highly recommended
- A sufficient number of observations per category is key
- Stay in close contact with the business and create sound definitions



## Make the most of your resources

- Choose the right tool for the right task
- The use of ChatGPT has proven to be a major success



## Keep it simple

- Reduce the categories to the essentials
- Use pre-trained models from the community for generic tasks
- Start quickly with a zero-shot-based approach for baselining



Query: "A friendly robot jumping over a hurdle."

Thank you!



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