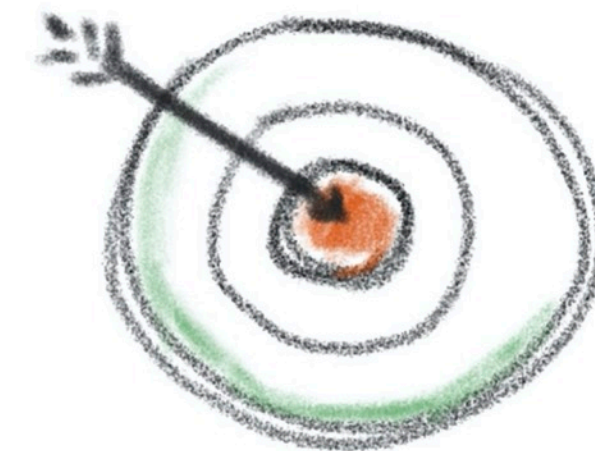


Machine Learning Use Cases with DDD and ML Design Canvas

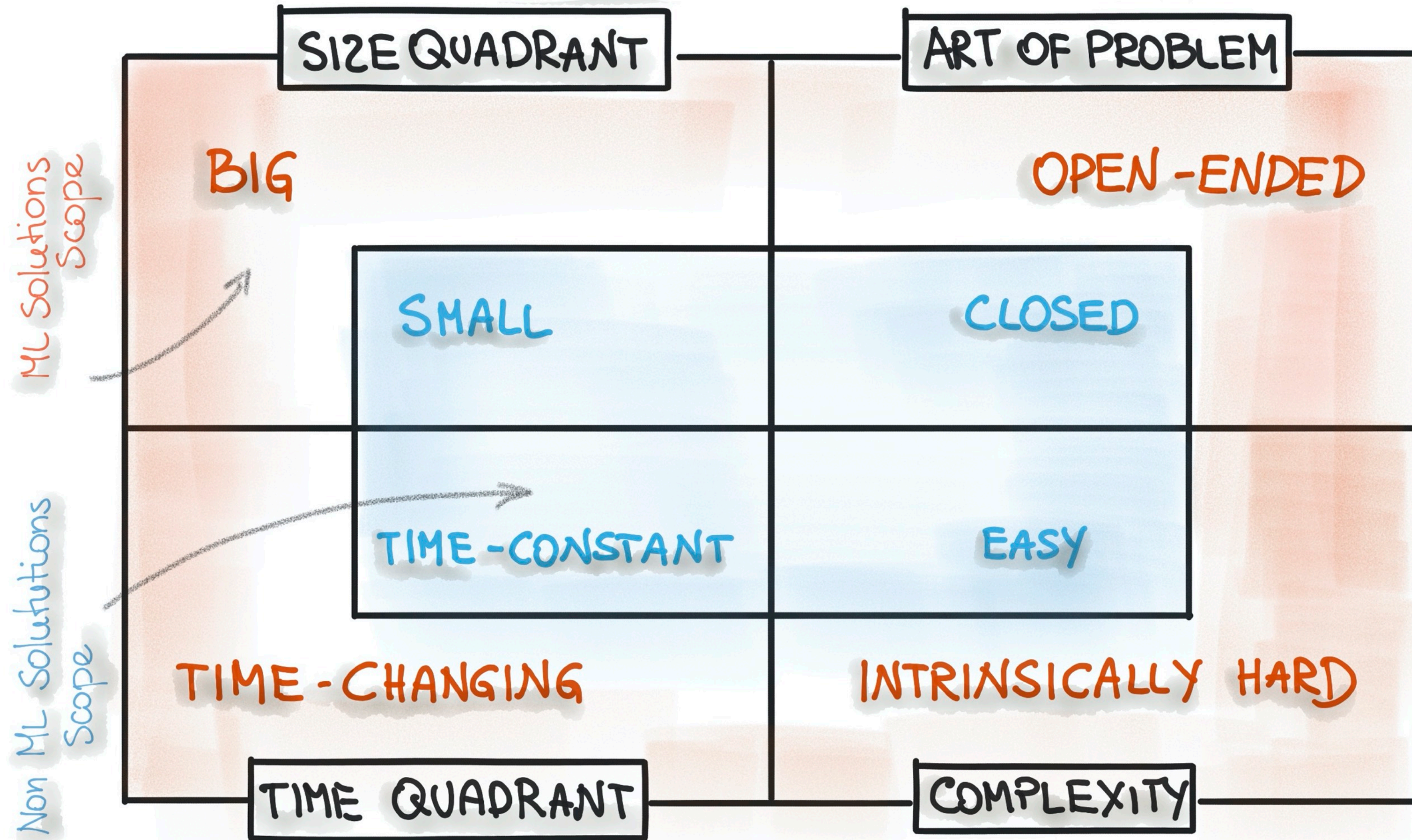
What kind of problems?

WHAT IS THE RIGHT
PROBLEM FOR AN
ML-SOLUTION ?



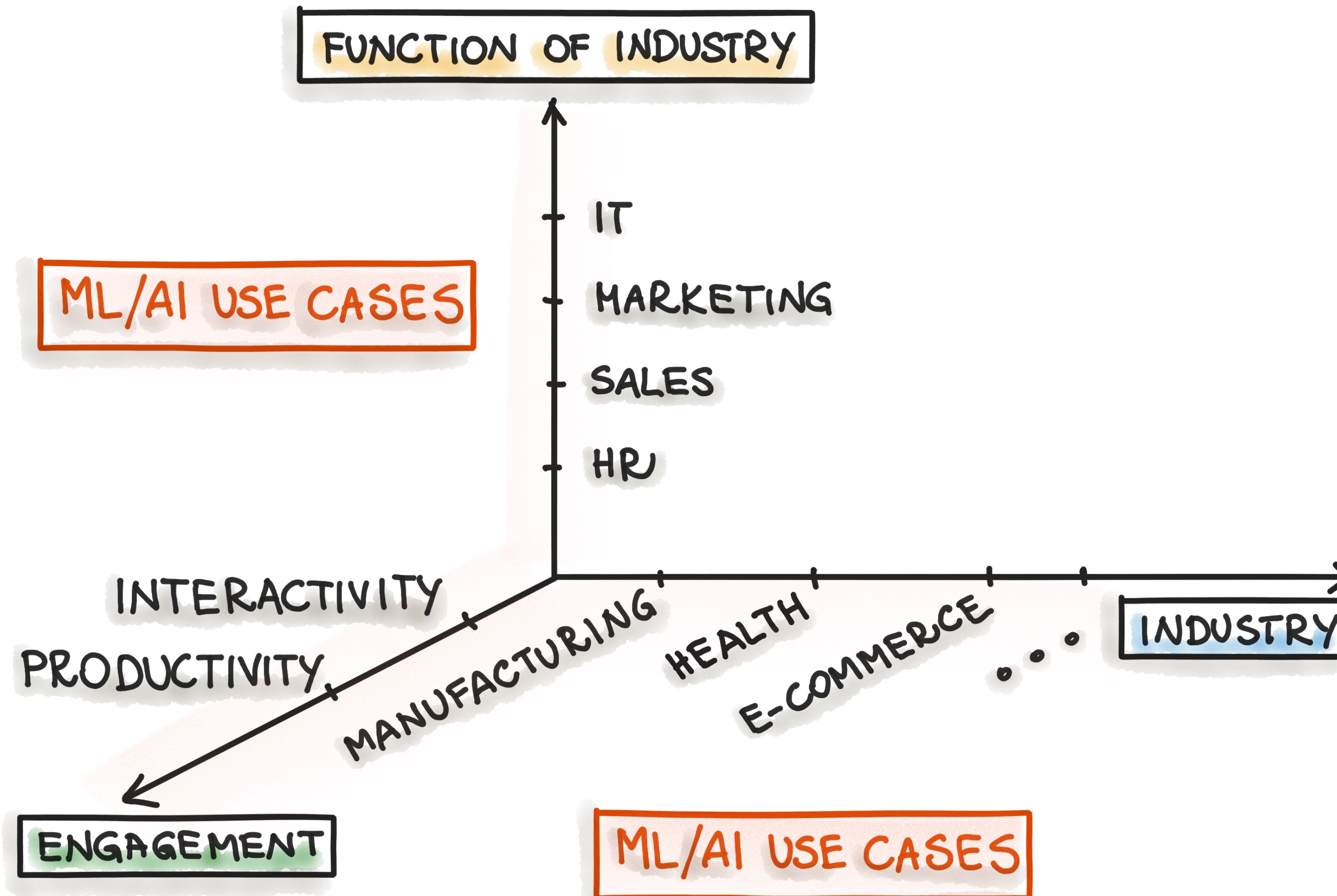
@visenger

What kind of problems?



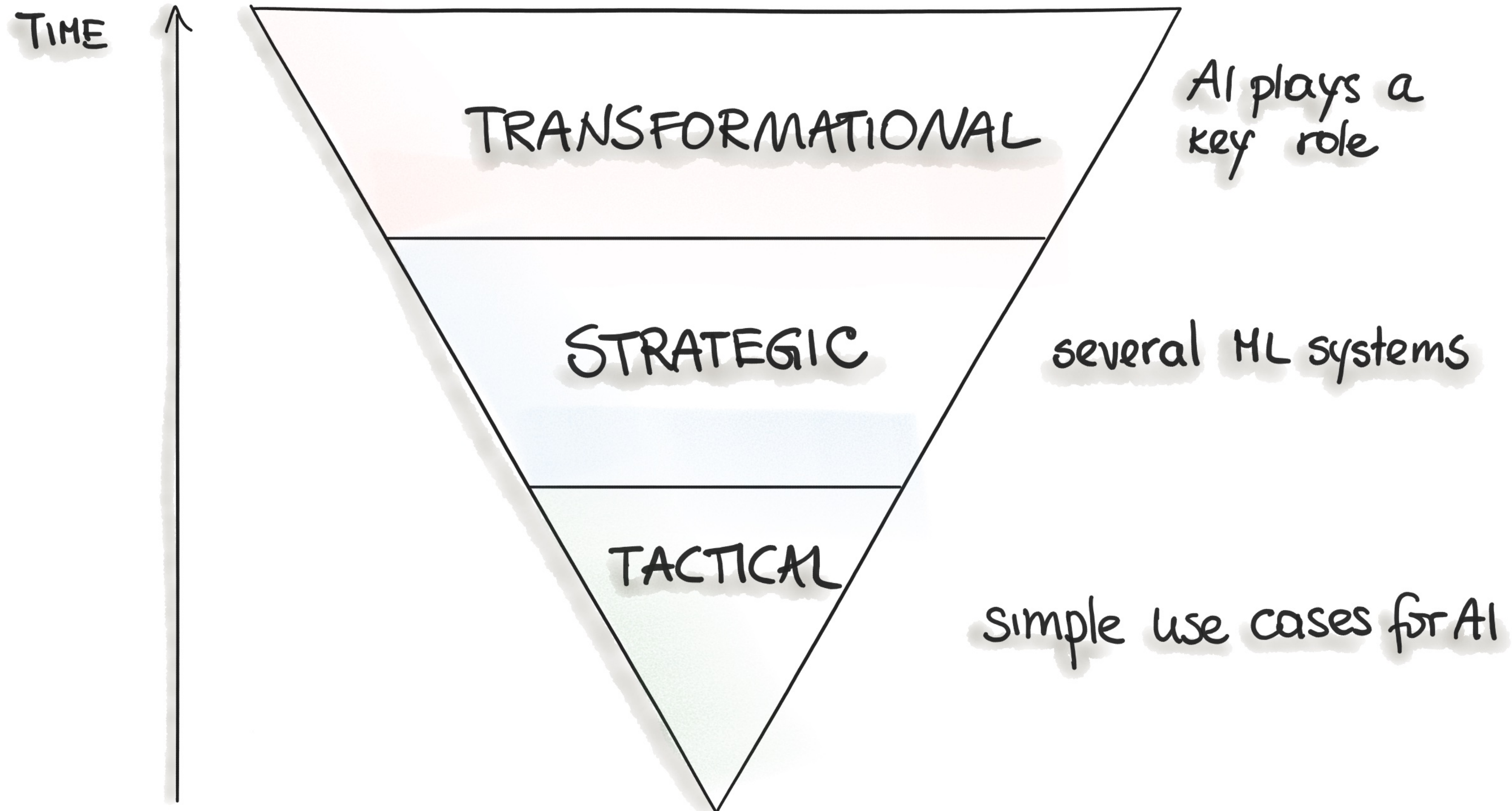
@visenger

ML Use Cases Dimensions



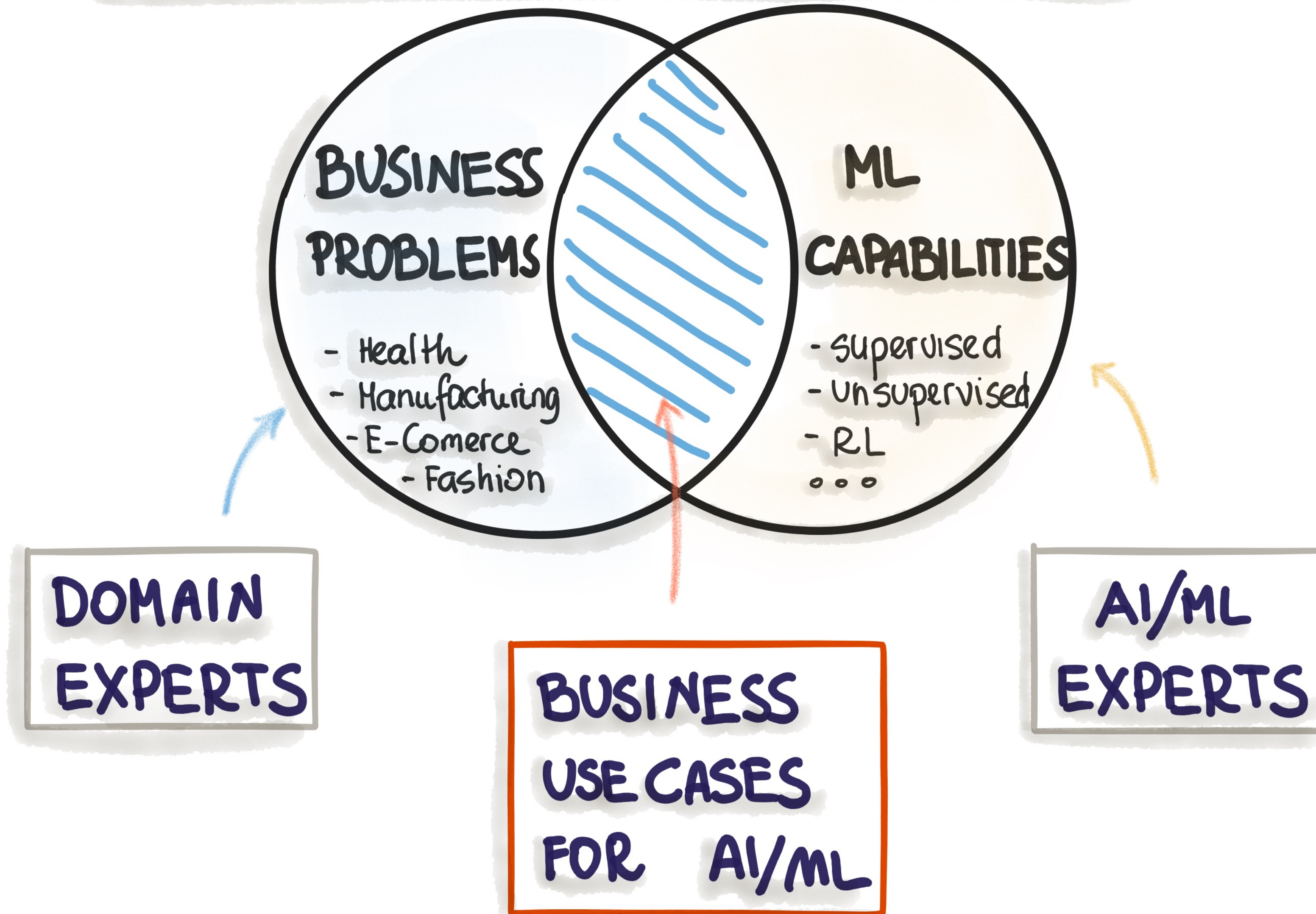
When?

AI READINESS



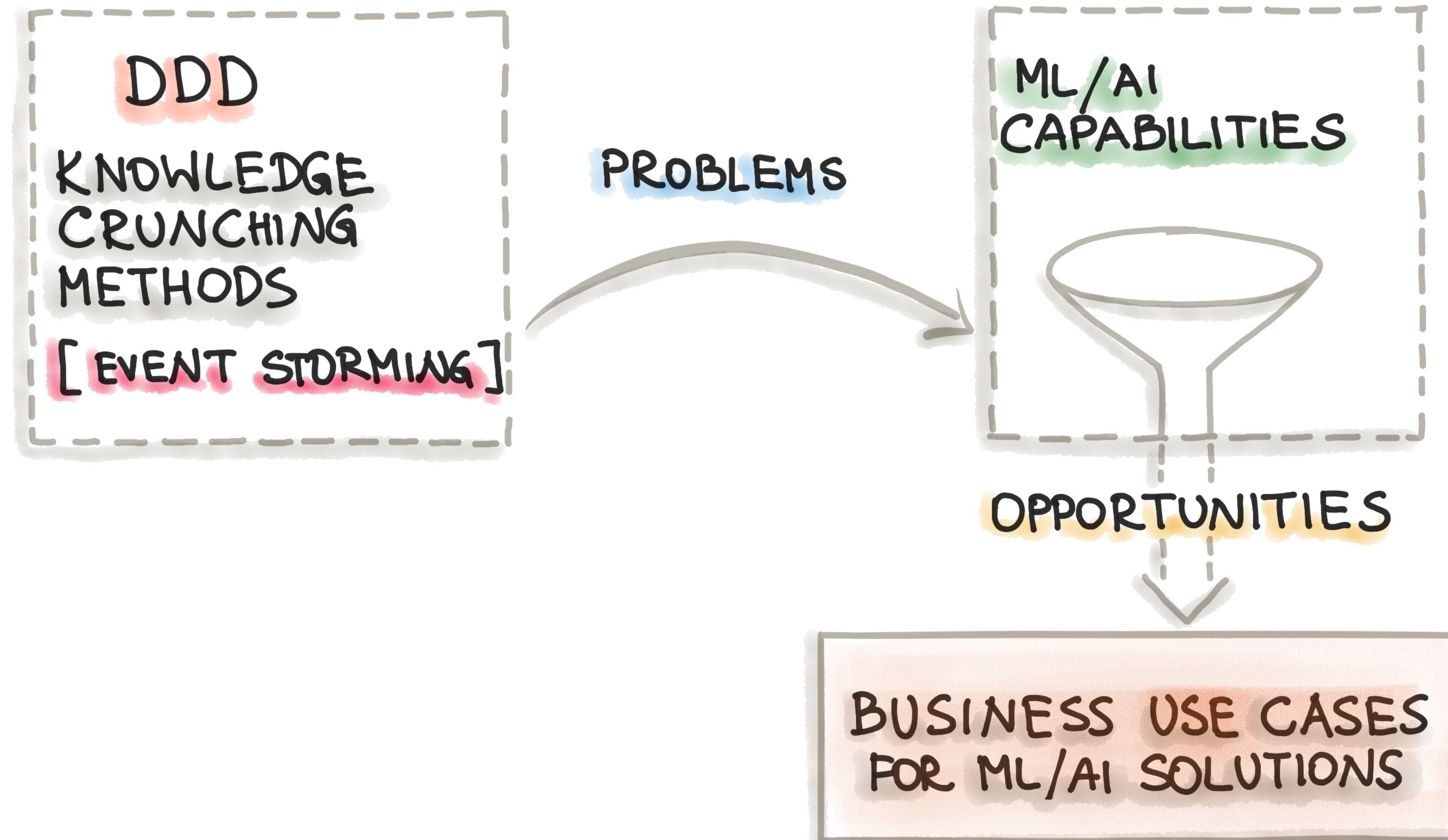
How?

MACHINE LEARNING USE CASES

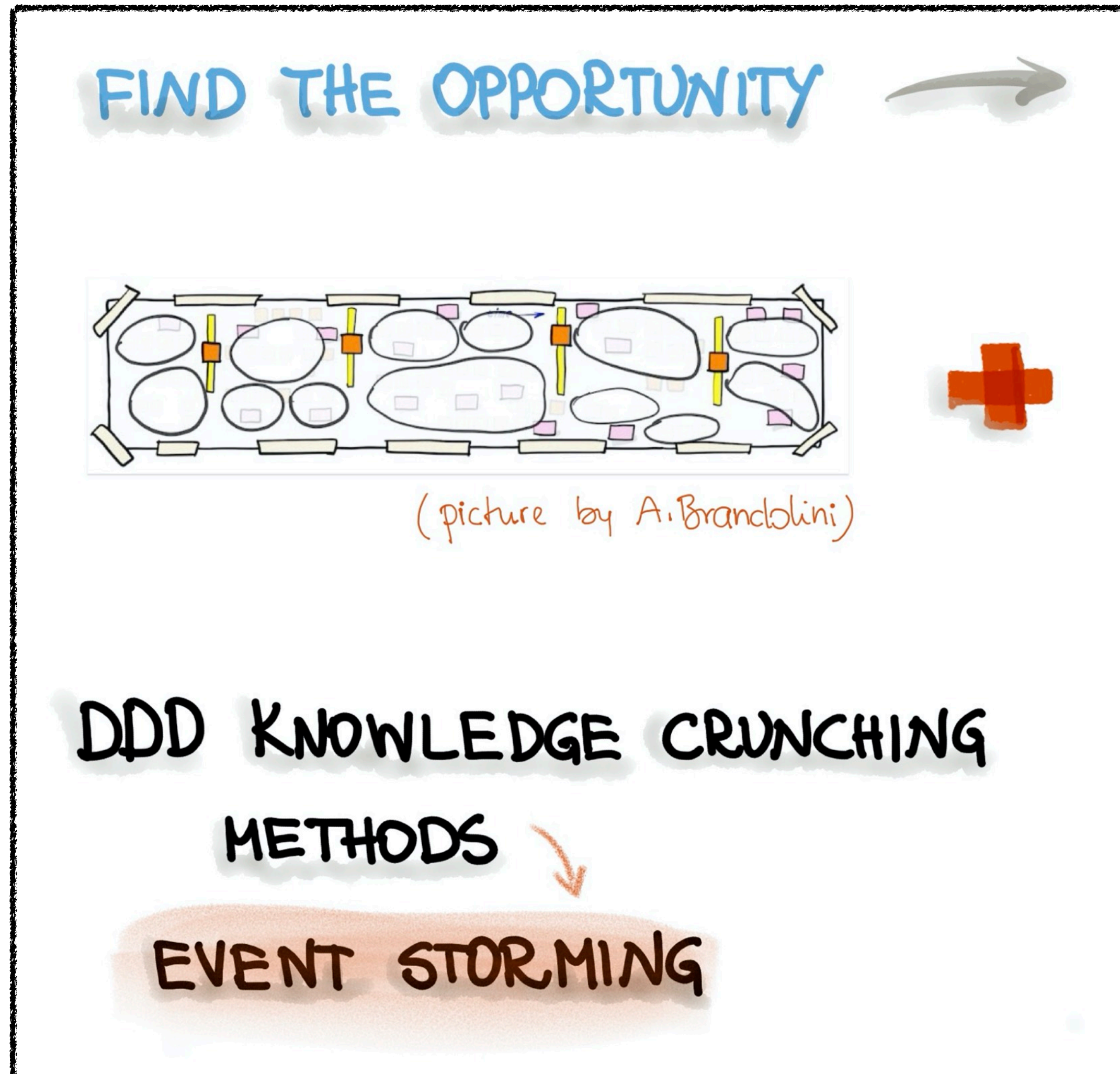


Knowledge Crunching

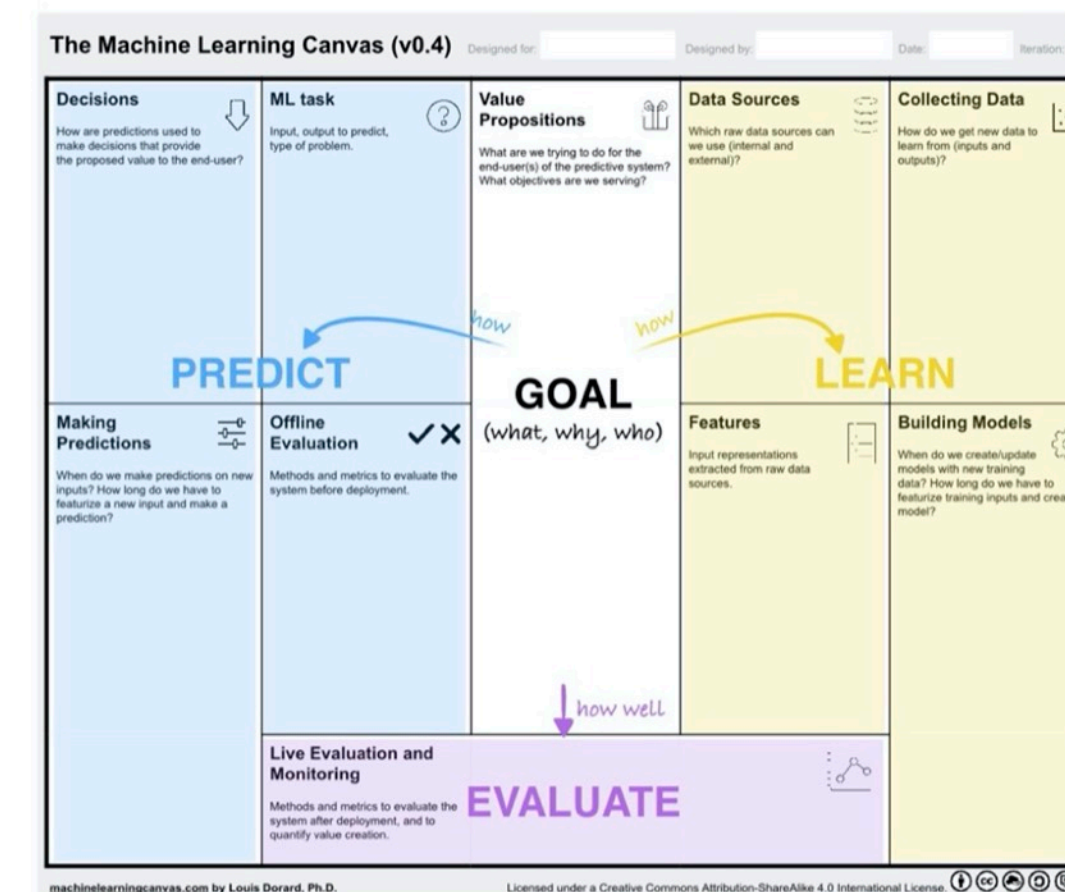
Event Storming For Finding AI Opportunities



Event Storming + ML Canvas

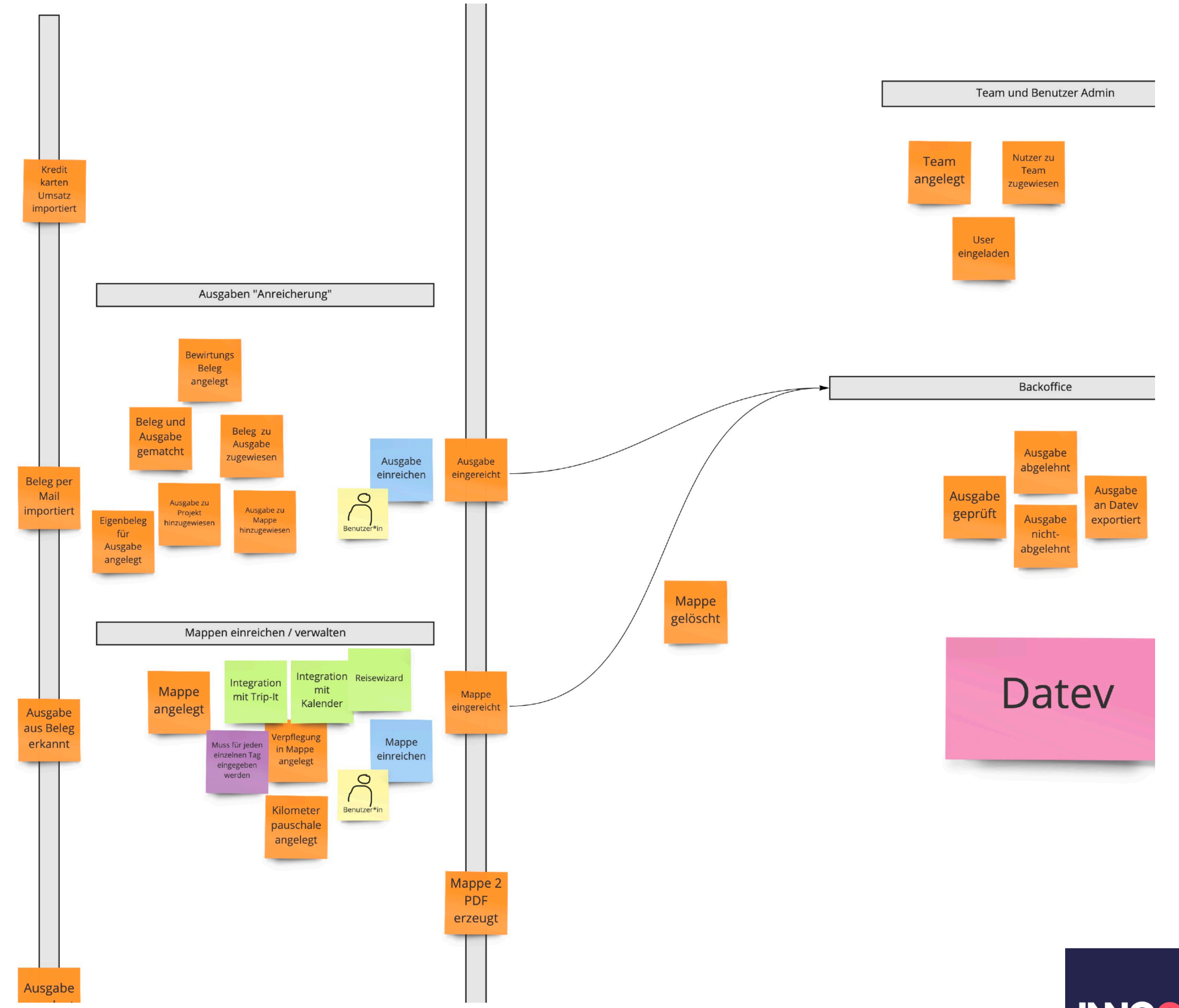


STRUCTURE PROJECT

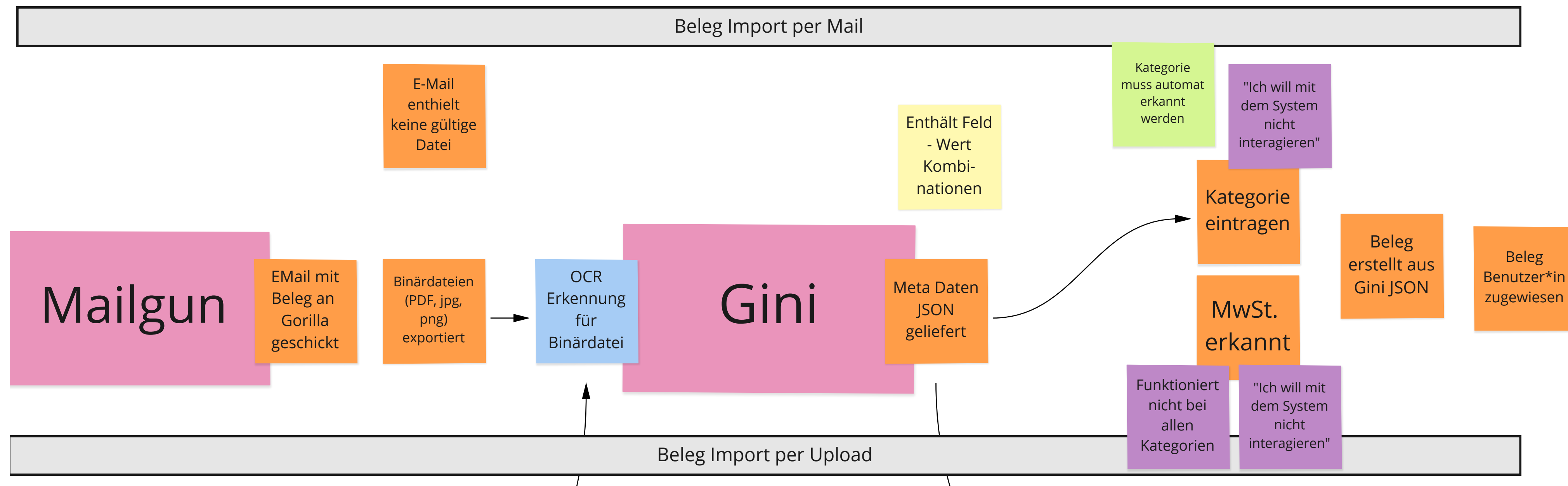


MACHINE LEARNING DESIGN CANVAS

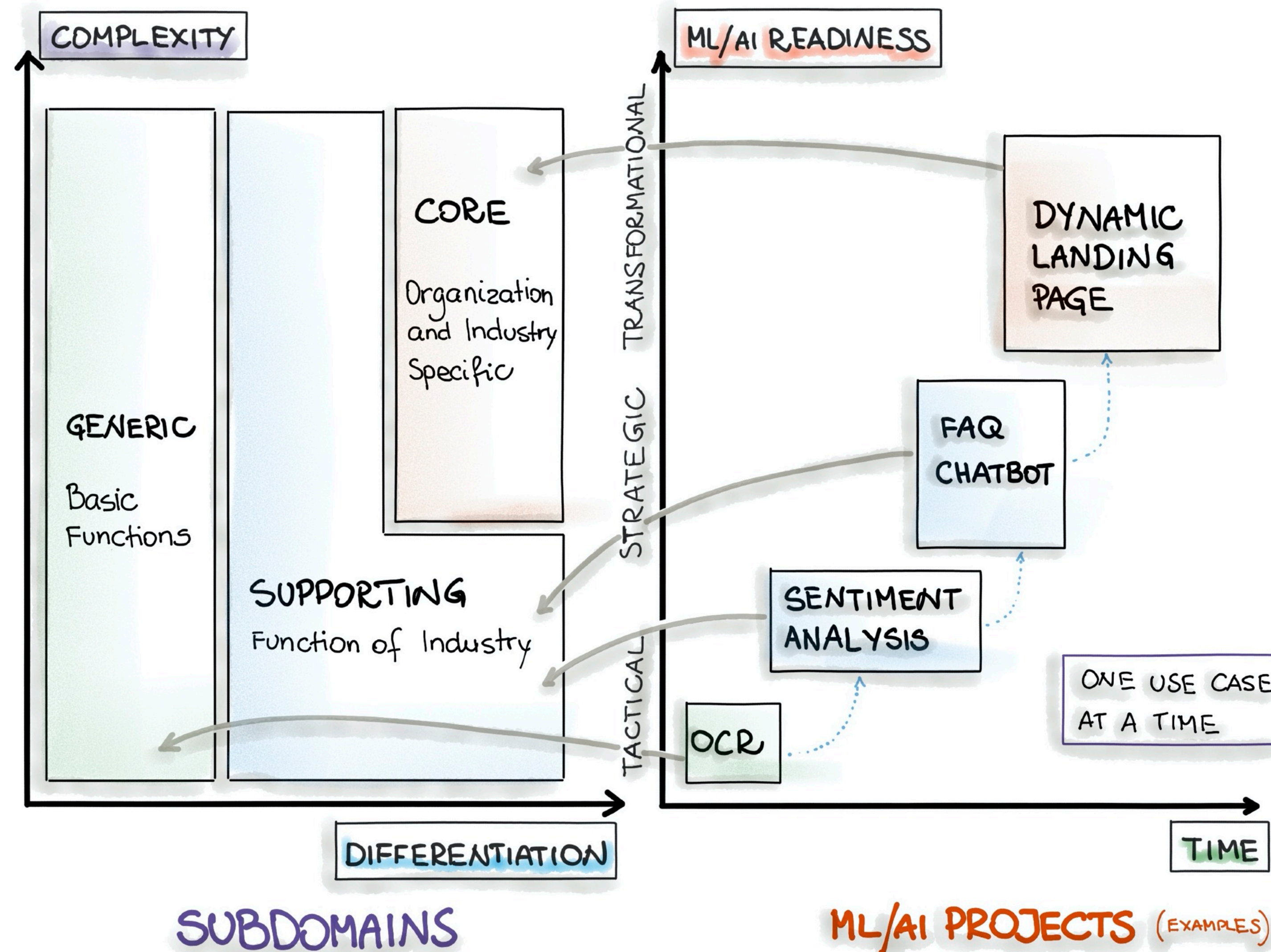
@visenger



Finding Pain Points: Candidates for ML-Use Cases?

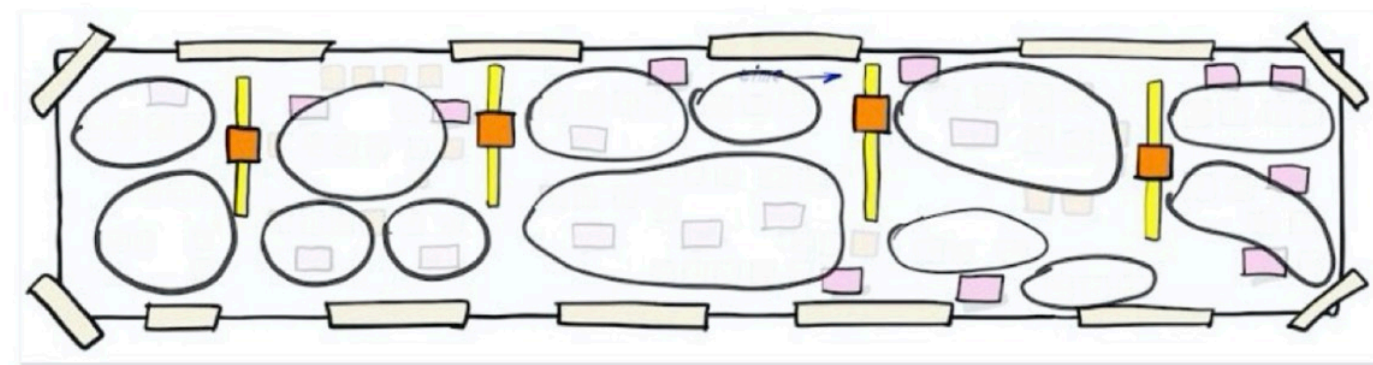


Using Domains For Prioritization



How to Structure ML Projects

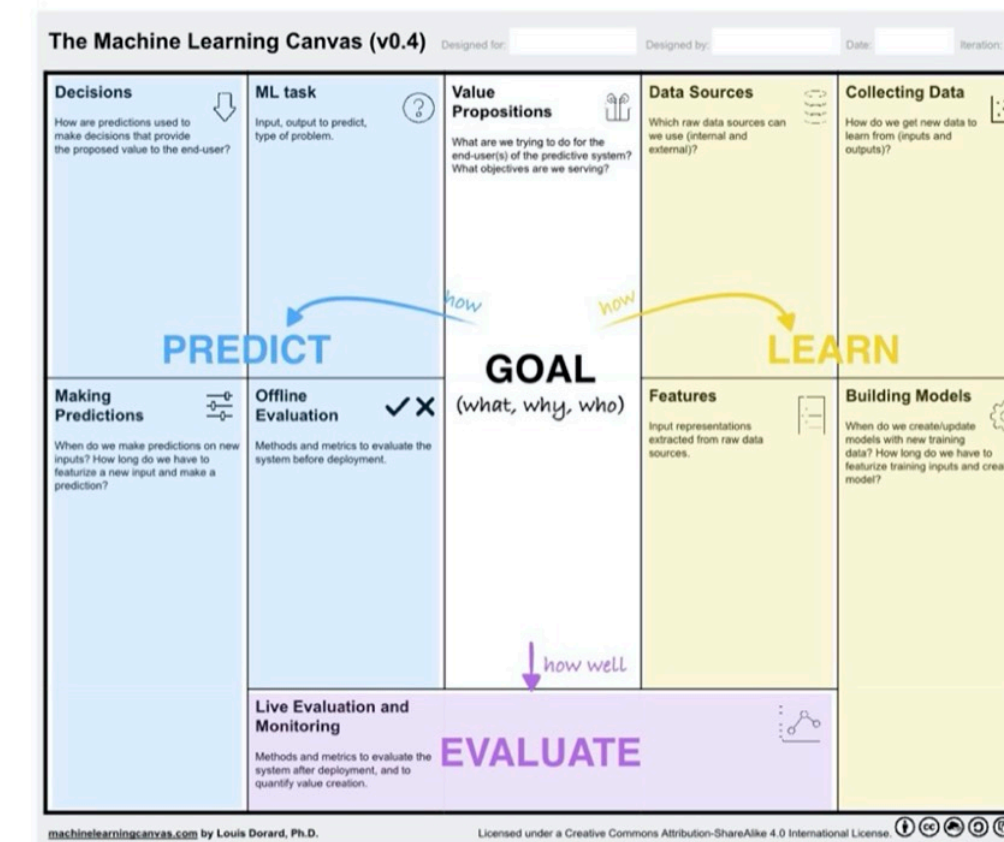
FIND THE OPPORTUNITY



(picture by A. Brandolini)



STRUCTURE PROJECT



DDD KNOWLEDGE CRUNCHING

METHODS



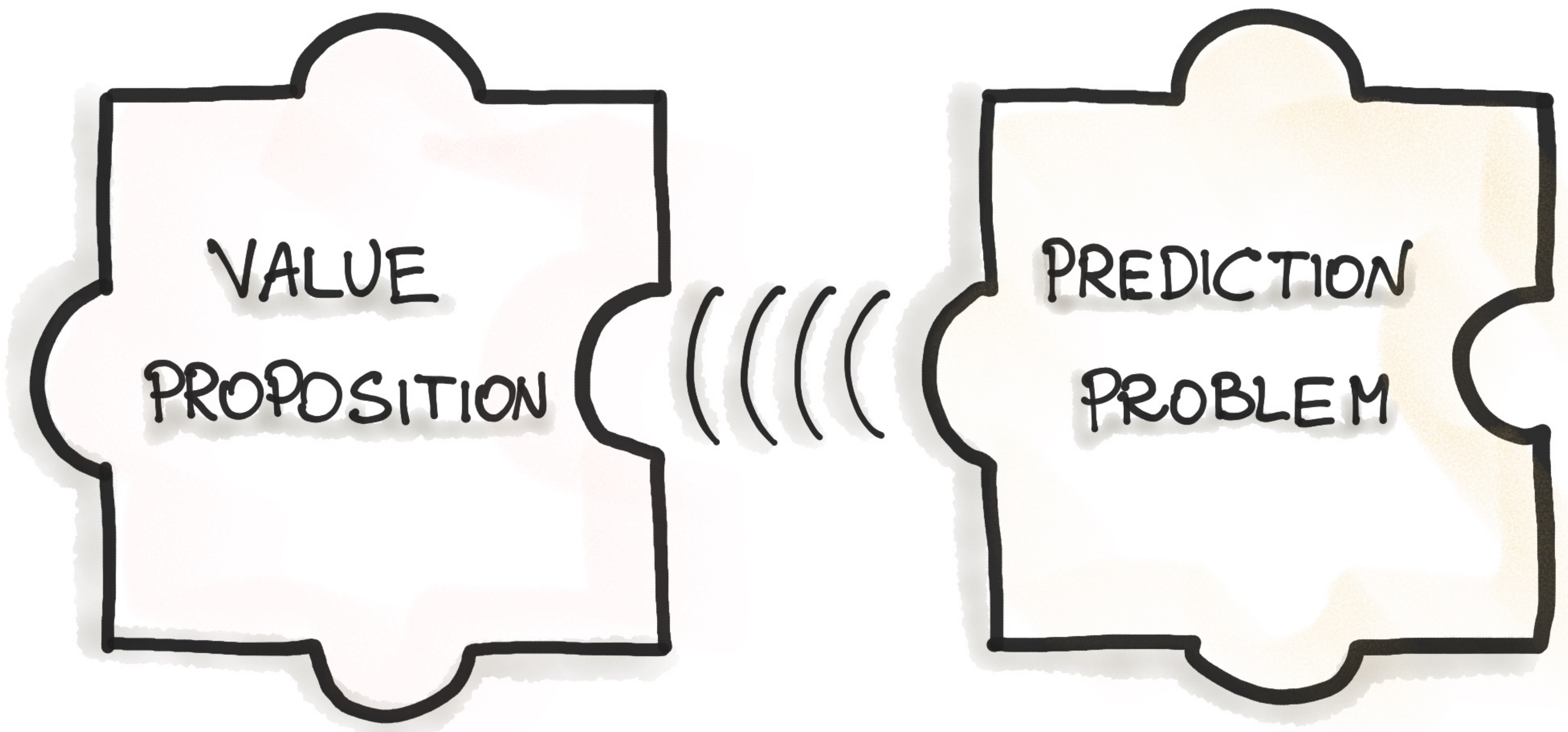
EVENT STORMING

MACHINE LEARNING DESIGN CANVAS

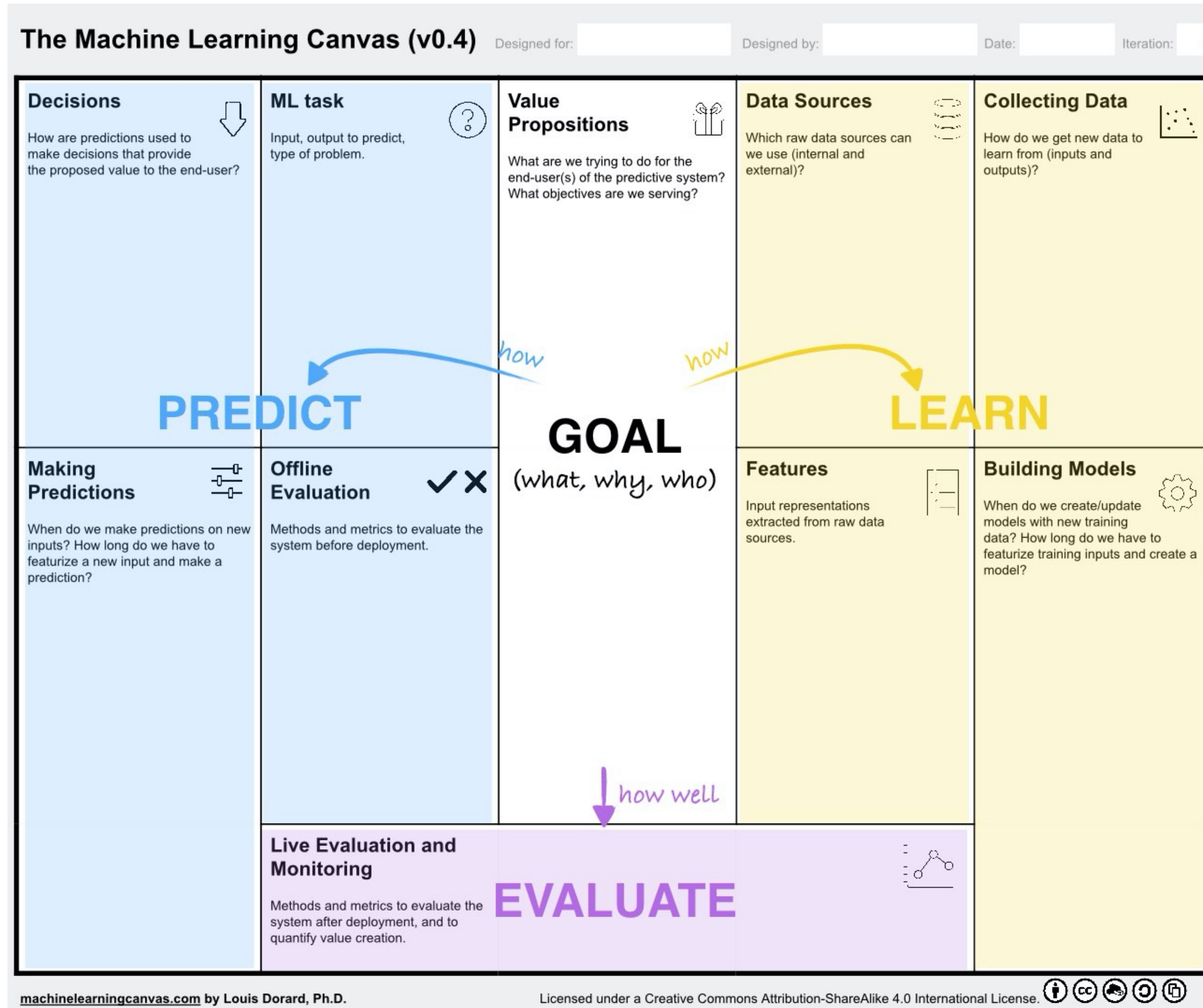
@visenger

Structuring ML Projects

MACHINE LEARNING CANVAS



Structuring ML Projects



Value Propositions

Value Propositions



1. What is the problem? What objective are we serving?
2. What are we trying to do for the end-user?
3. Why is it important?
4. Who is the end-user? Can we specify the persona?

Problem ""Ich will mit dem System nicht interagieren""

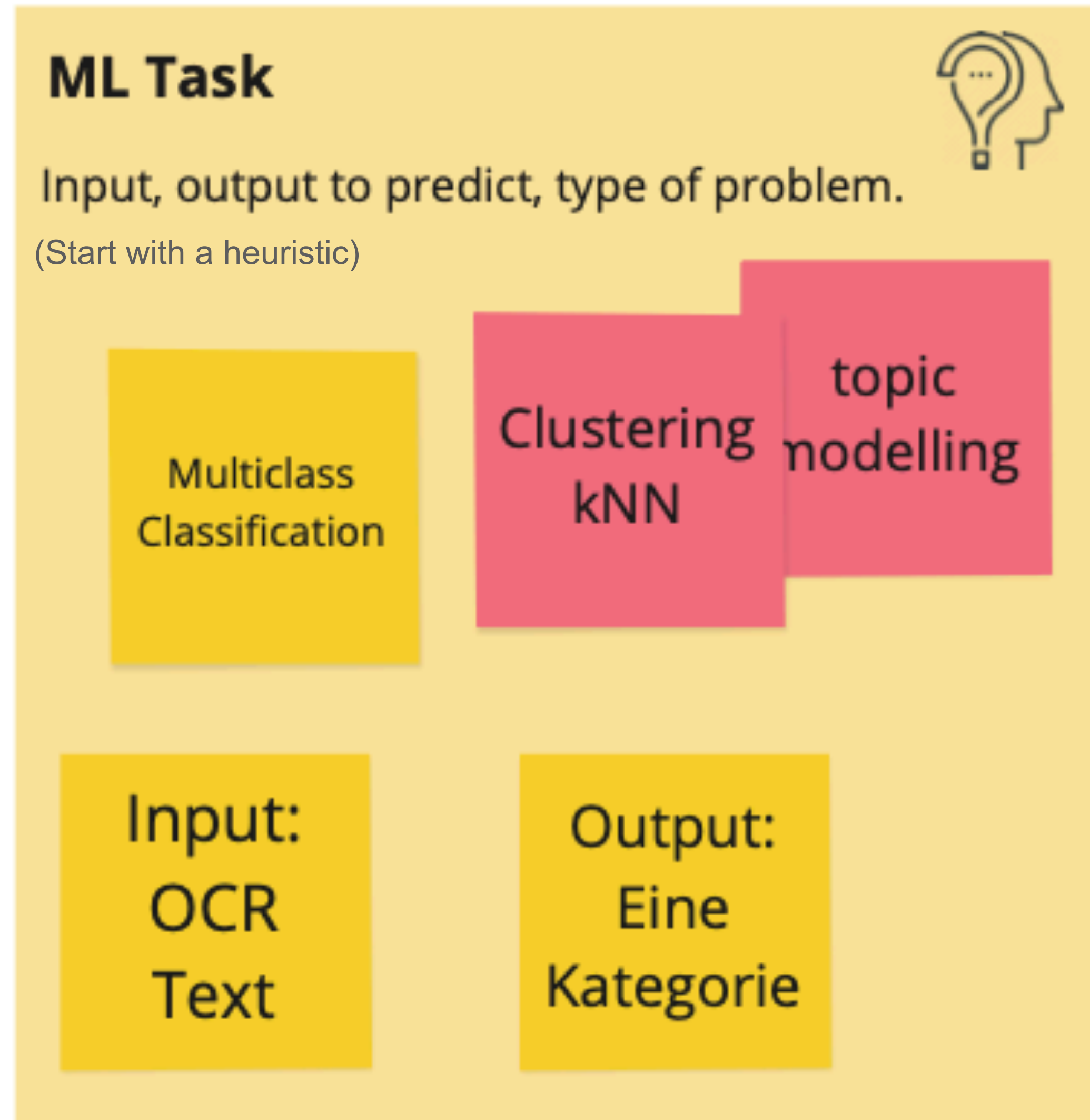
What we are trying to do: "Die RKG Kategorien automatisch erkennen"

Kategorie ist ein wichtiger Teil des Beleges.

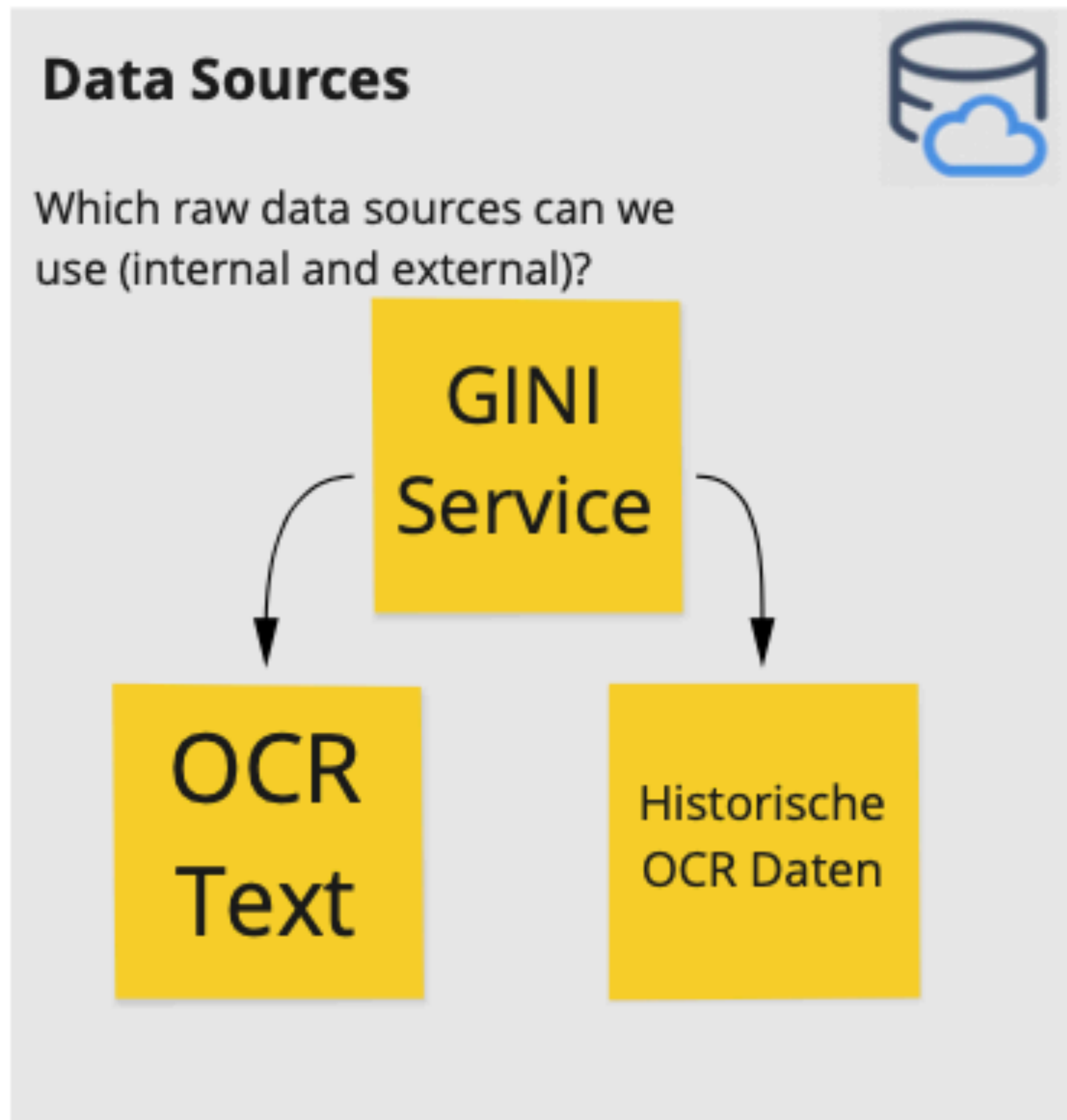
Manuelle Arbeit

End User:
RKG - User

ML Task



Data Sources



Features

Features



Input representations extracted
from raw data sources

TfidfVectorizer
auf dem OCR
Text

Offline Evaluation

Offline Evaluation



Methods and metrics to evaluate the system before deployment.

Accuracy

F1
Precision
Recall

Decisions

Decisions



How are predictions used to make decisions that provide the proposed value to the end-user?

Kategorie wird automatisch im Formular eingetragen (incl. MwSt.)

Kategorieerkennung muss vom User kontrolliert werden

Making Predictions

Making Predictions



When do we make predictions on new inputs?
How long do we have to featurize a new input and make a prediction?

Jedesmal, wenn ein Dokument im System hochgeladen wurde.

Gini Service stellt OCR Text von dem neuen Dokument zur Verfügung

TfidfVectorizer für Feature Extraction

Klassifizierung on-the-fly

Collecting Data

Collecting Data



How do we get new data to learn from (inputs and outputs)?

3-
Monate
Batch

Vom Backoffice
gelabelt/geprüft
(Human)

Gini/RKG-
Server

Building Models

Building Models



When do we create/update models with new training data? How long do we have to featurize training inputs and create a model?

Alle 3
Monate

Jeden Monat:
Chron Job für
Batch holen
und Model re-
training

S3 für
Model
Repository

Heroku
Instanz

Weil wenig Daten
und einfaches
Model: -> Model
re-training dauert
ca. 1-2 Min

Live Evaluation and Monitoring

Live Evaluation and Monitoring

Methods and metrics to evaluate the system after deployment, and to quantify value creation.

Weniger
Ausfüllen
bei
Formular

Kürzere Zeiten bei
RK-
Belegeabrechnung

MLOps @ INNOQ

The screenshot shows a web browser window with the address bar displaying "ml-ops.org". The page content includes the MLOps logo (three circles followed by the text "MLOps"), the title "Machine Learning Operations", and a paragraph explaining the goal of MLOps: "With Machine Learning Model Operationalization Management (MLOps), we want to provide an end-to-end machine learning development process to design, build and manage reproducible, testable, and evolvable ML-powered software." Below the text is a diagram consisting of three overlapping circles connected by a thick dark blue line, labeled "Design", "Model Development", and "Operations" from left to right.

ml-ops.org

∞∞ MLOps

Machine Learning Operations

With Machine Learning Model Operationalization Management (MLOps), we want to provide an end-to-end machine learning development process to design, build and manage reproducible, testable, and evolvable ML-powered software.

Design Model Development Operations