

# INPI's first dive into AI: Dispatching of patent applications to examination teams

Jonathan Witt

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# AI at INPI

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## What for?

Increase our efficiency

## How?

Build a POC to assess feasibility



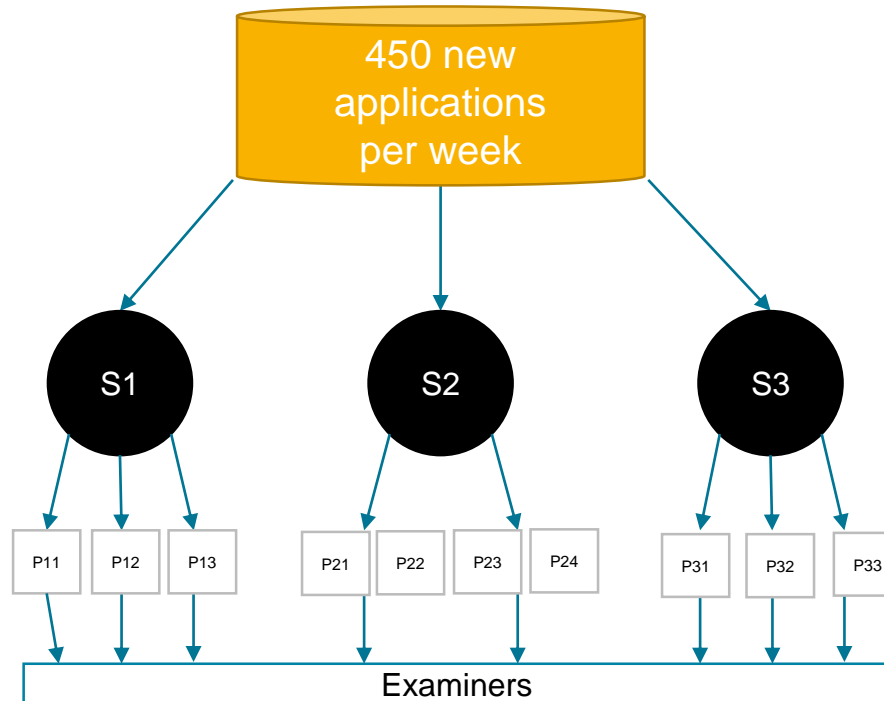
If promising results → industrialization



otherwise |  → with knowledge capitalization

# Existing process: Manual dispatching of patent applications to examination teams

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## 2 steps :

### Predispatching:

- Service Managers - 9 h/week

### Dispatching to examiners :

- Team Managers :  
2h/team/week (total: 20h)

- ▶ Predispatching based on the title and text of each application
- ▶ Dispatching based on:
  - Text and claims structure

# Key project expectations

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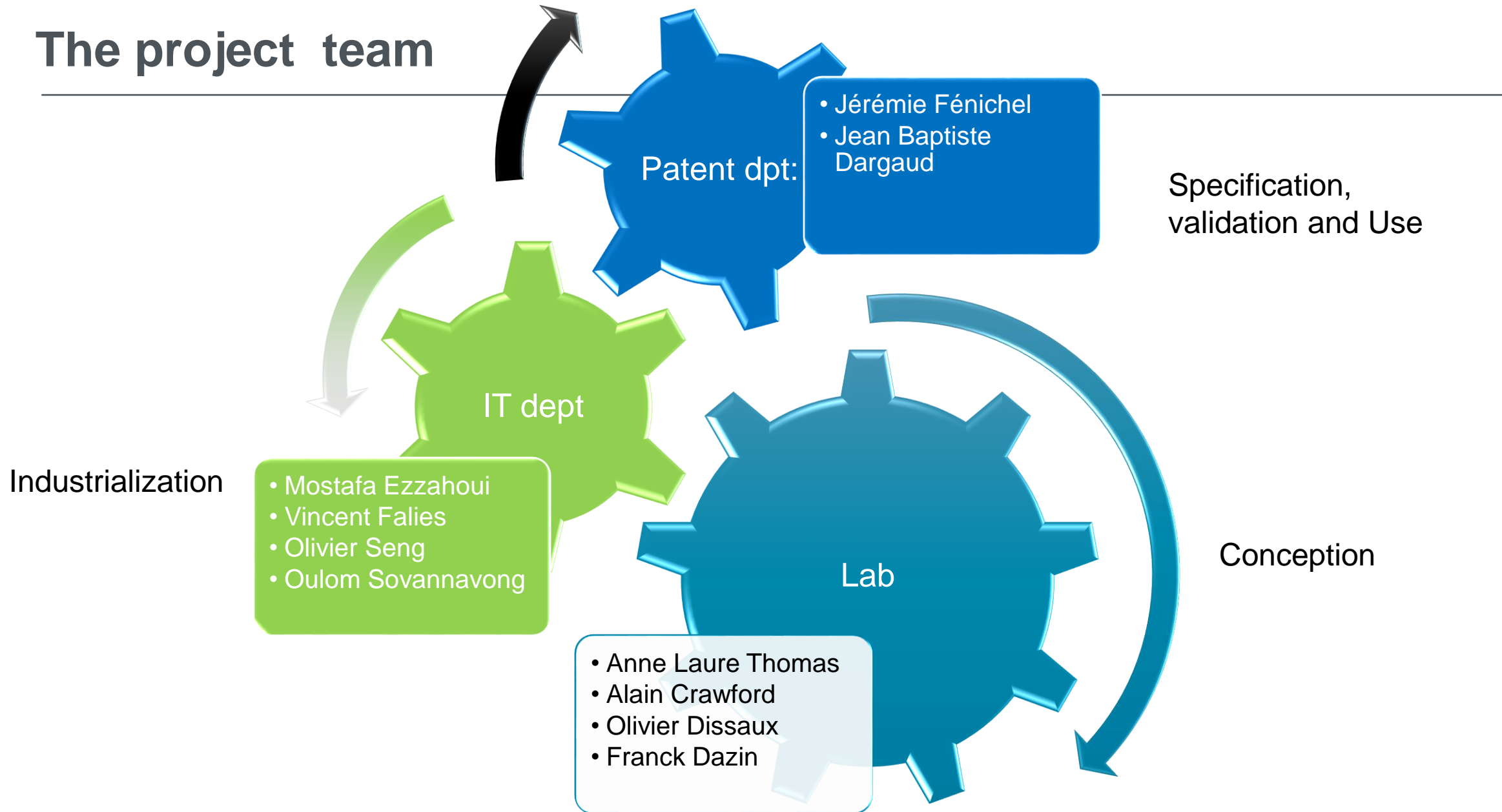
- Minimize human readings by service managers and team managers to dispatch the demands
- Biases and dispatching errors must be detected at the appropriate steps of the examination procedure
- Errors should be easily corrected
- Easy retraining of the model periodically



Our operational need  
Dispatching to teams + classification proposition



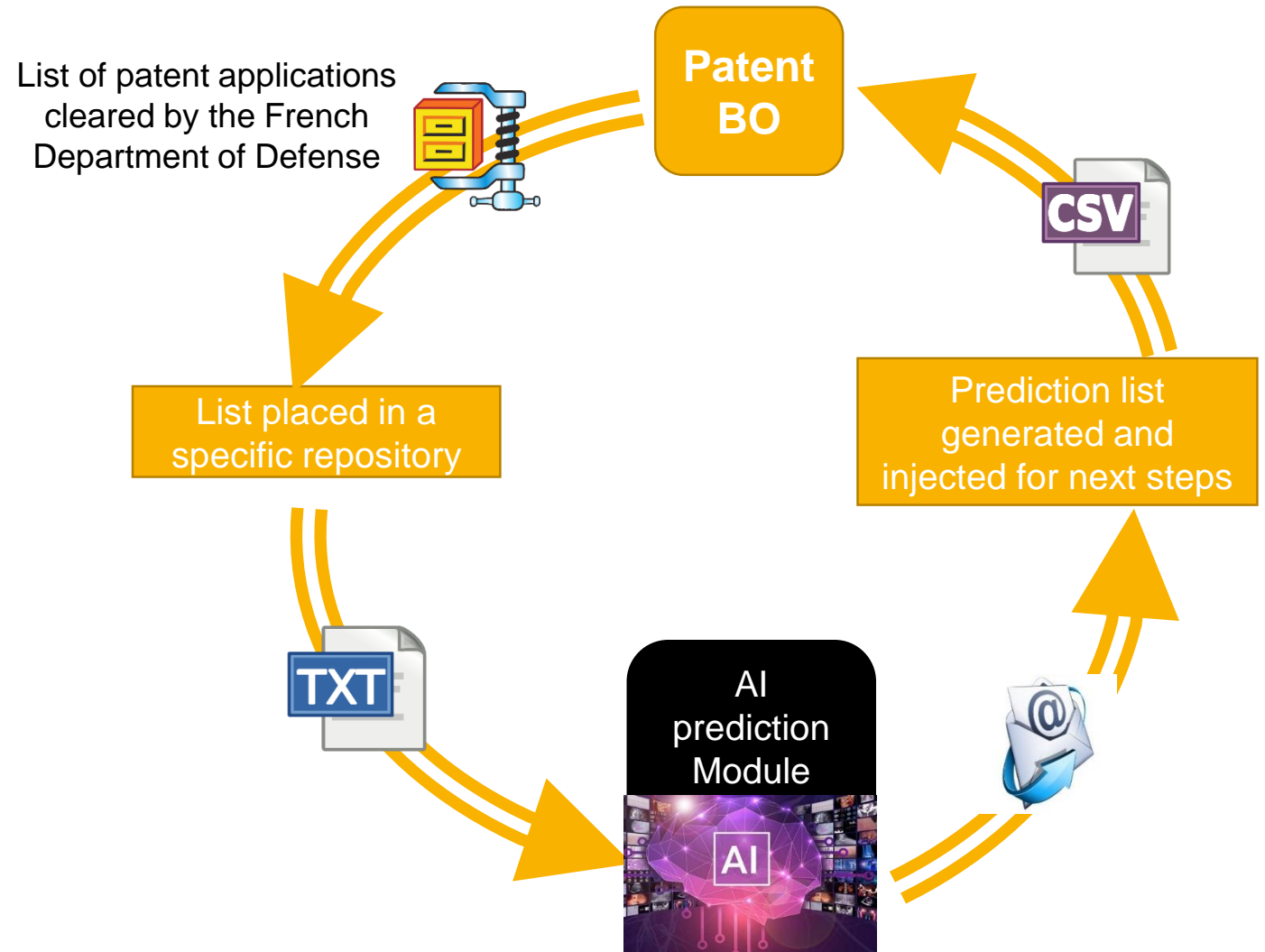
# The project team



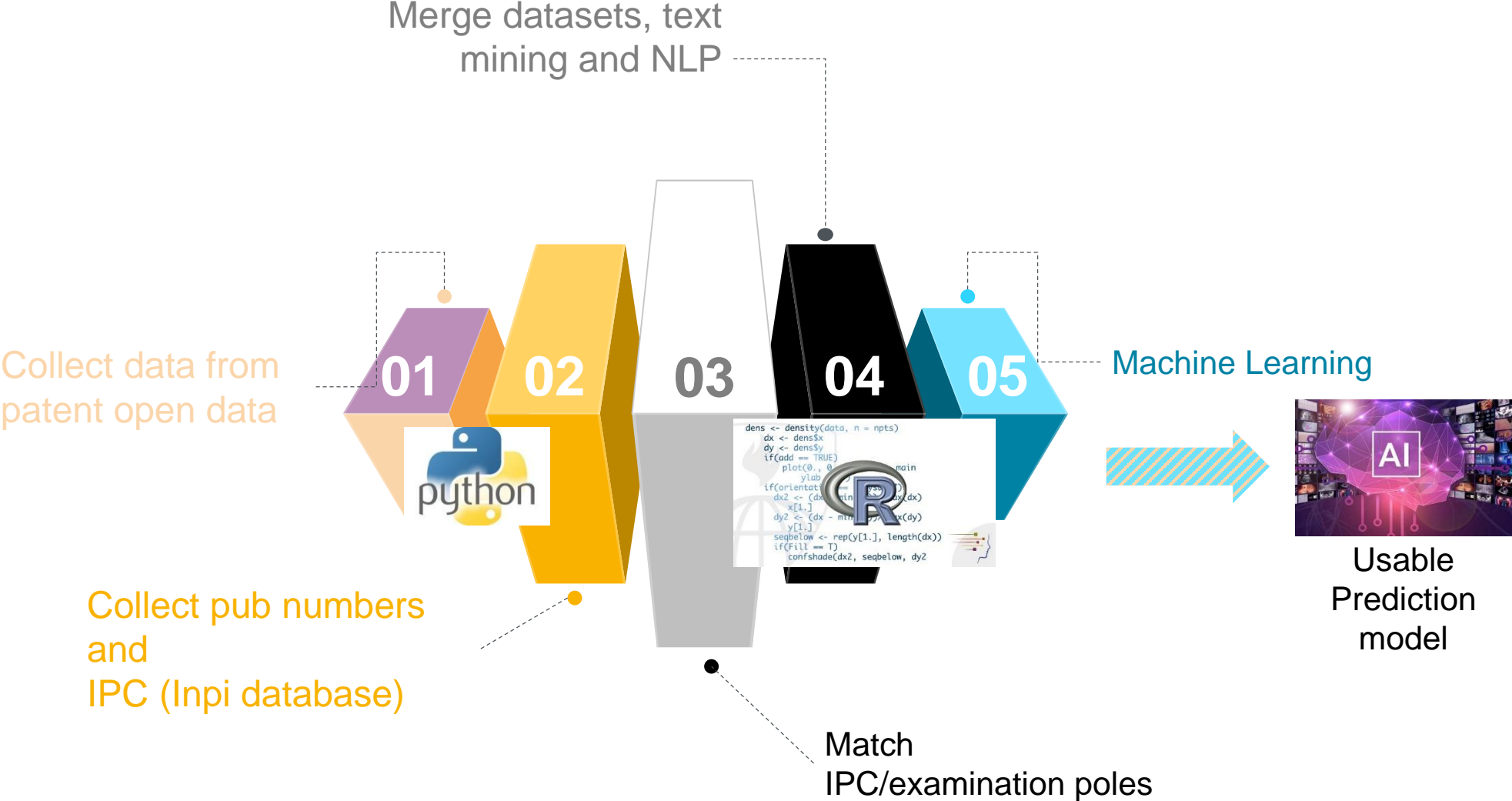
# Insertion of the AI module in the patent process

## Lab proposal : elaboration of a classification model

- ✓ machine learning based, implementing FastText
- ✓ Output: prediction file integrated in the patent backoffice feeding
- ✓ Fully integrated



# Building the Machine Learning Model

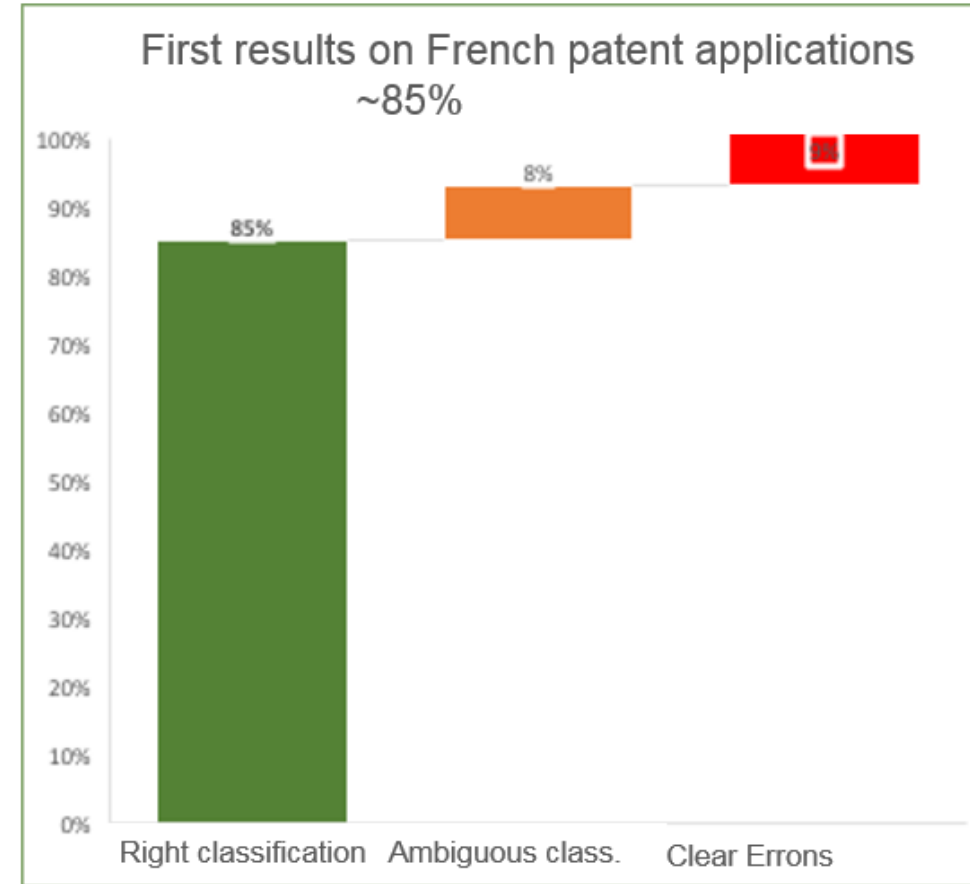


# Model Performance: 85%

	Reference							
Prediction	__label__P1	__label__P2	__label__P3	__label__P4	__label__P5	__label__P6	__label__P7	__label__P8
__label__P1	1385	51	61	20	49	35	6	49
__label__P2	36	1503	84	15	39	140	26	39
__label__P3	56	84	2160	36	50	61	12	15
__label__P4	21	15	38	2219	106	35	24	47
__label__P5	42	51	66	136	1326	36	15	34
__label__P6	14	104	47	29	25	1589	45	45
__label__P7	7	45	9	23	10	47	1906	76
__label__P8	33	56	21	46	43	54	59	1398

Overall statistics

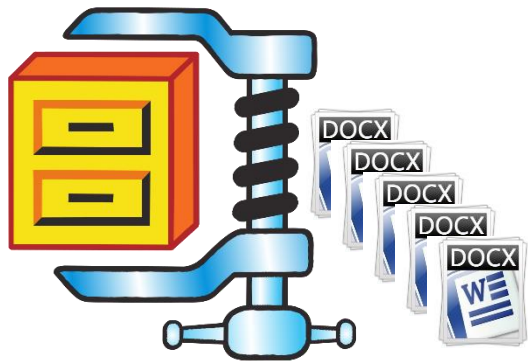
Accuracy : 0.8453



Reference: human dispatching accuracy - around 90 %



# Functional module construction steps

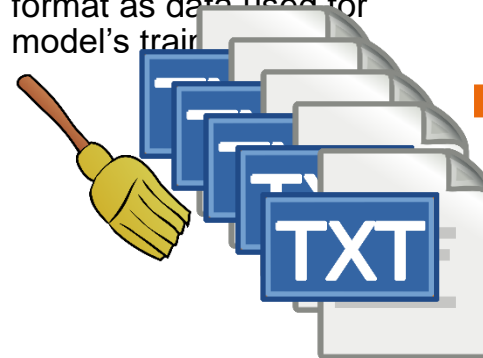


Reading archives containing docx patent application

- Patent application checked by Defense dpt

Unzip and preparation of the data

- Text mining and cleaning (removing stopwords accents and non alpha chars)
- Data ready, in the same format as data used for model's train



Model application on each demand

- Pole prediction model loading
- Poles prediction
- File writing/appendung



D1,P4  
D2,P2  
D3,P2,  
D4,P8  
...

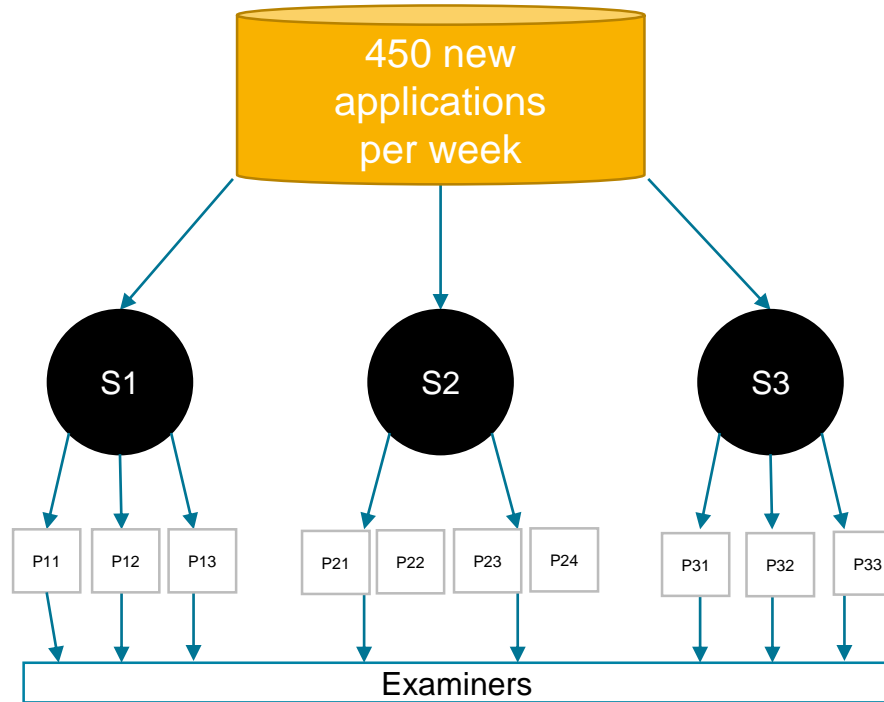
Predictions saved and ready for the global chain

- Unique horodated file
- Deleting of working files



Document ready for Patent back office

# AI module impact



## One-step dispatching: ~~Predispatching (Service Managers):~~

- Time saved: ~5-6 h / week

## Distribution :

- Team managers dispatch patent applications in their poles
- Gain : ~1-2 h / week for each pole manager
- **Total Gain : ~ 8h per week**

# Our AI roadmap

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- **Automatic classification of trademarks / designs according to the Vienna / Locarno classifications**
- **Technological pre-classification of patent applications**
- **Developing collaborations with other patent offices**

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# Thank you very much for your attention

Jonathan Witt : [jwitt@inpi.fr](mailto:jwitt@inpi.fr)

For any request concerning AI tools :  
Olivier Dissaux : [odissaux@inpi.fr](mailto:odissaux@inpi.fr)

