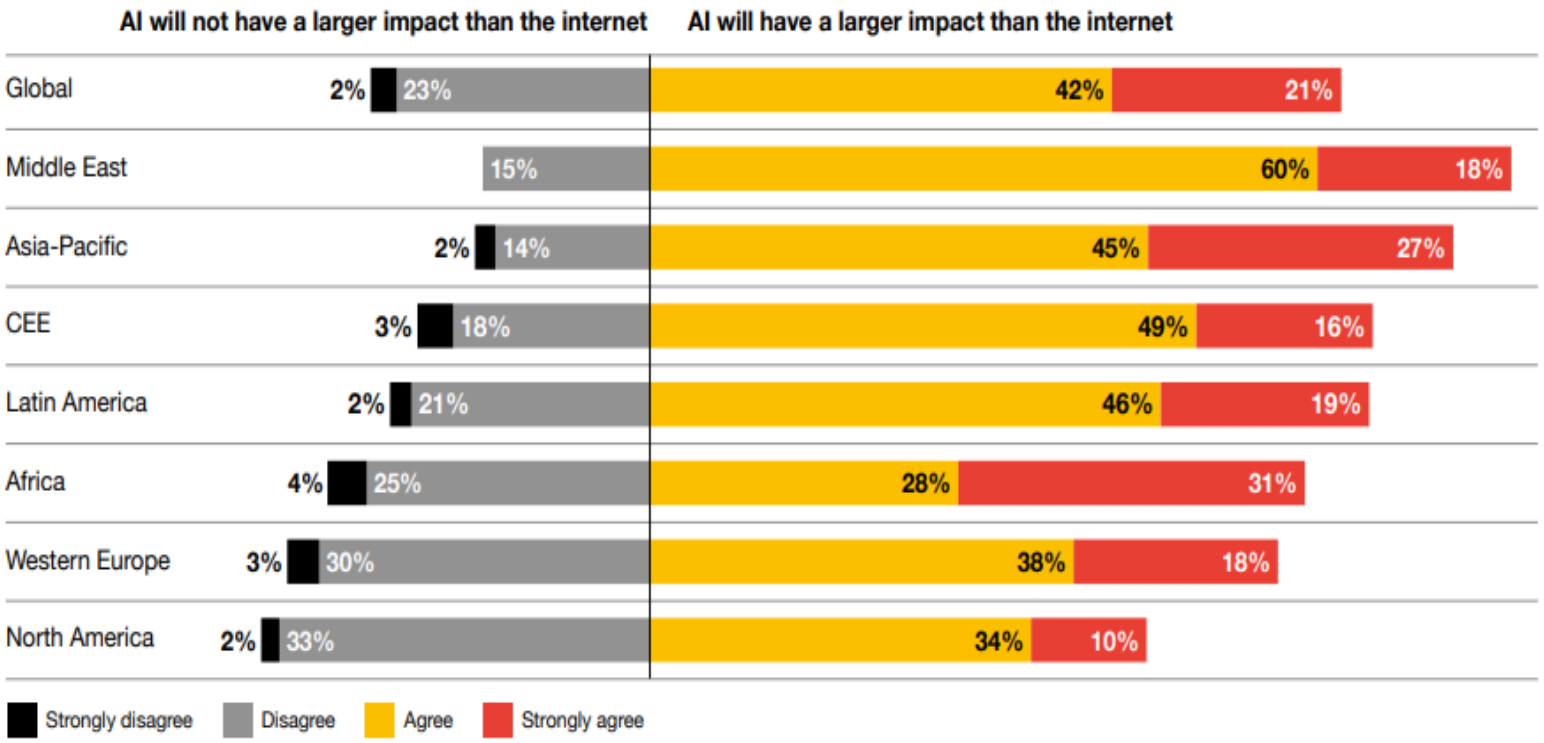
Building internal stakeholders' trust in AI-based solutions

Nataliya Capon, AMLD 2020

CEOs attitude towards AI adoption

The survey of 1 378 CEOs conducted in the fall of 2018 by PwC shows that the majority of participants recognize a high potential of AI



Source: PwC, 22nd Annual Global CEO Survey
Base: All respondents (2019=1,378)

Q: 'How strongly do you agree/disagree that AI will have a larger impact on the world than the internet revolution? '

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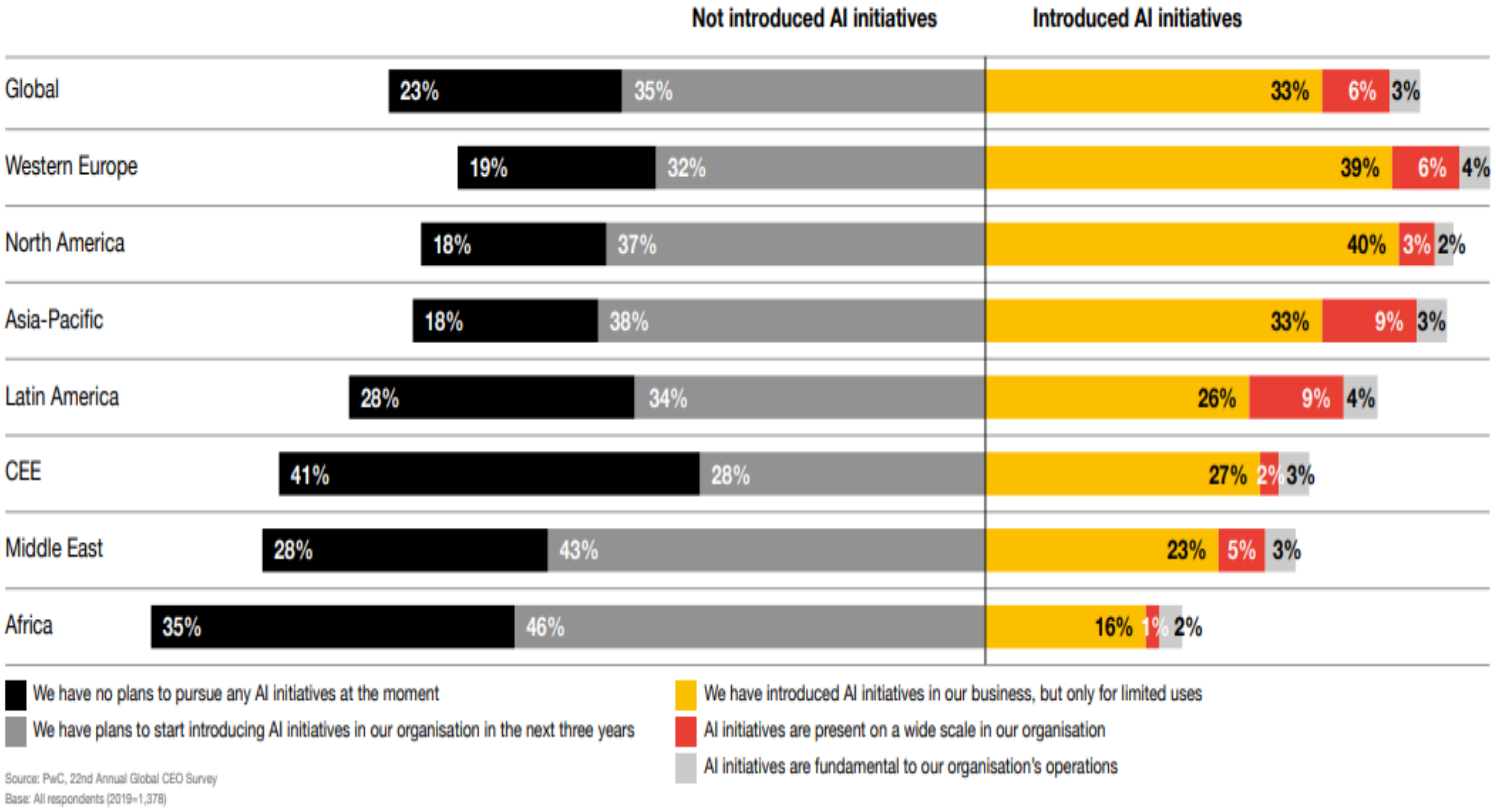
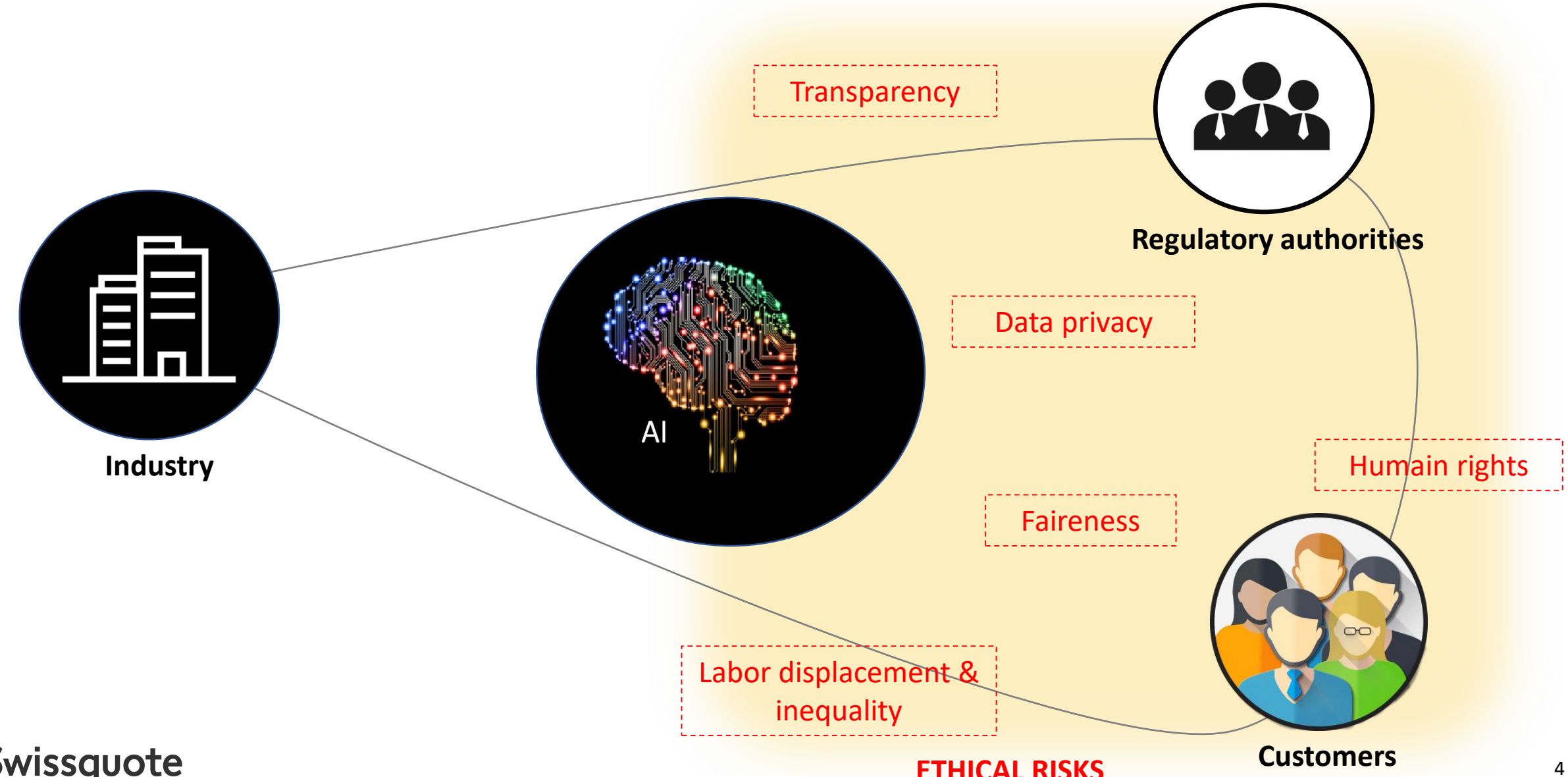
CEOs attitude towards AI adoption

The survey of 1 378 CEOs conducted in the fall of 2018 by PwC shows that the majority of participants recognize a high potential of AI … **but are making a slow progress in integrating AI initiatives in their organizations**



Q: 'Please select the statement that best applies to your organization'

The trust barrier to releasing the full potential of AI



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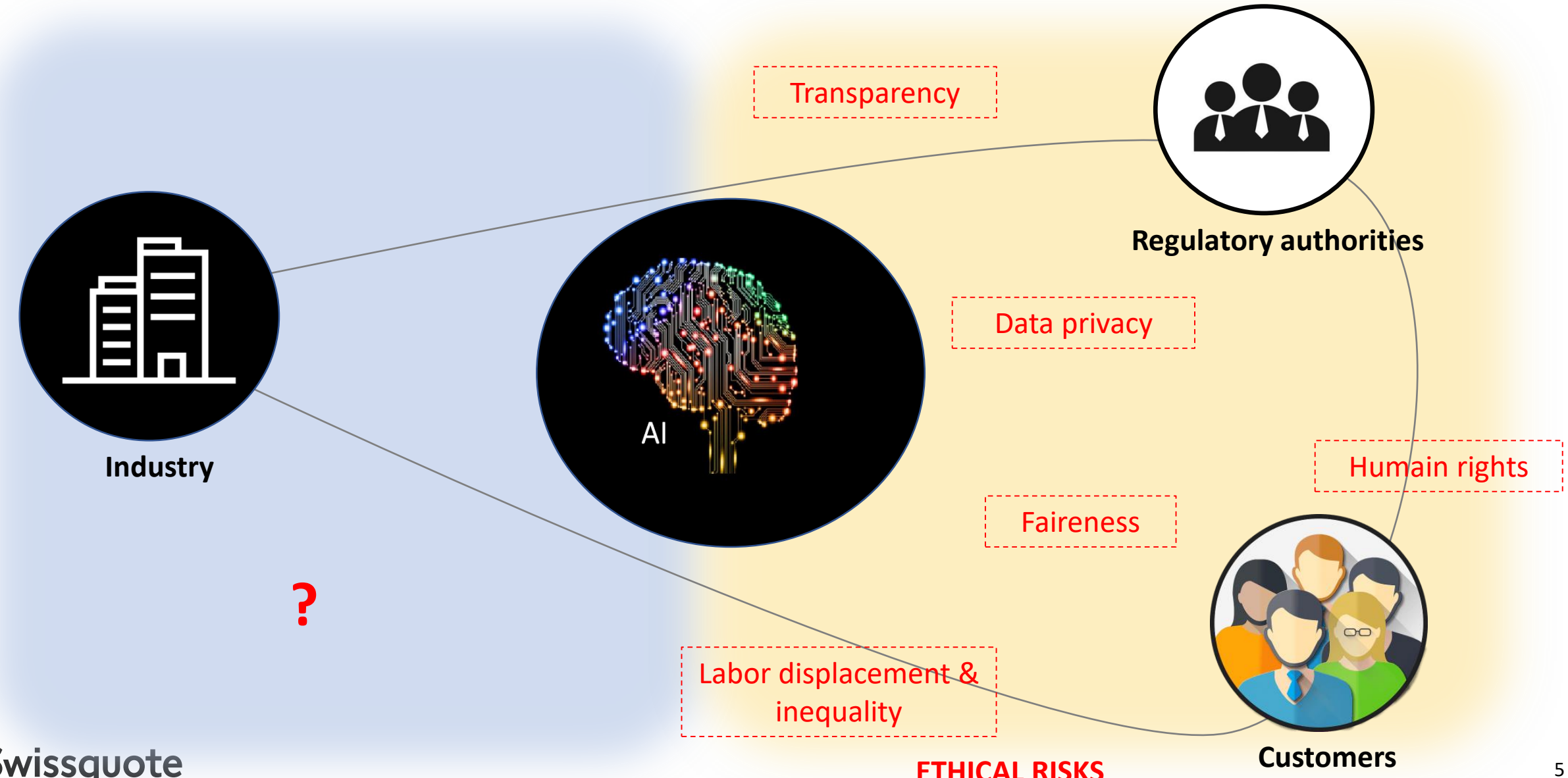

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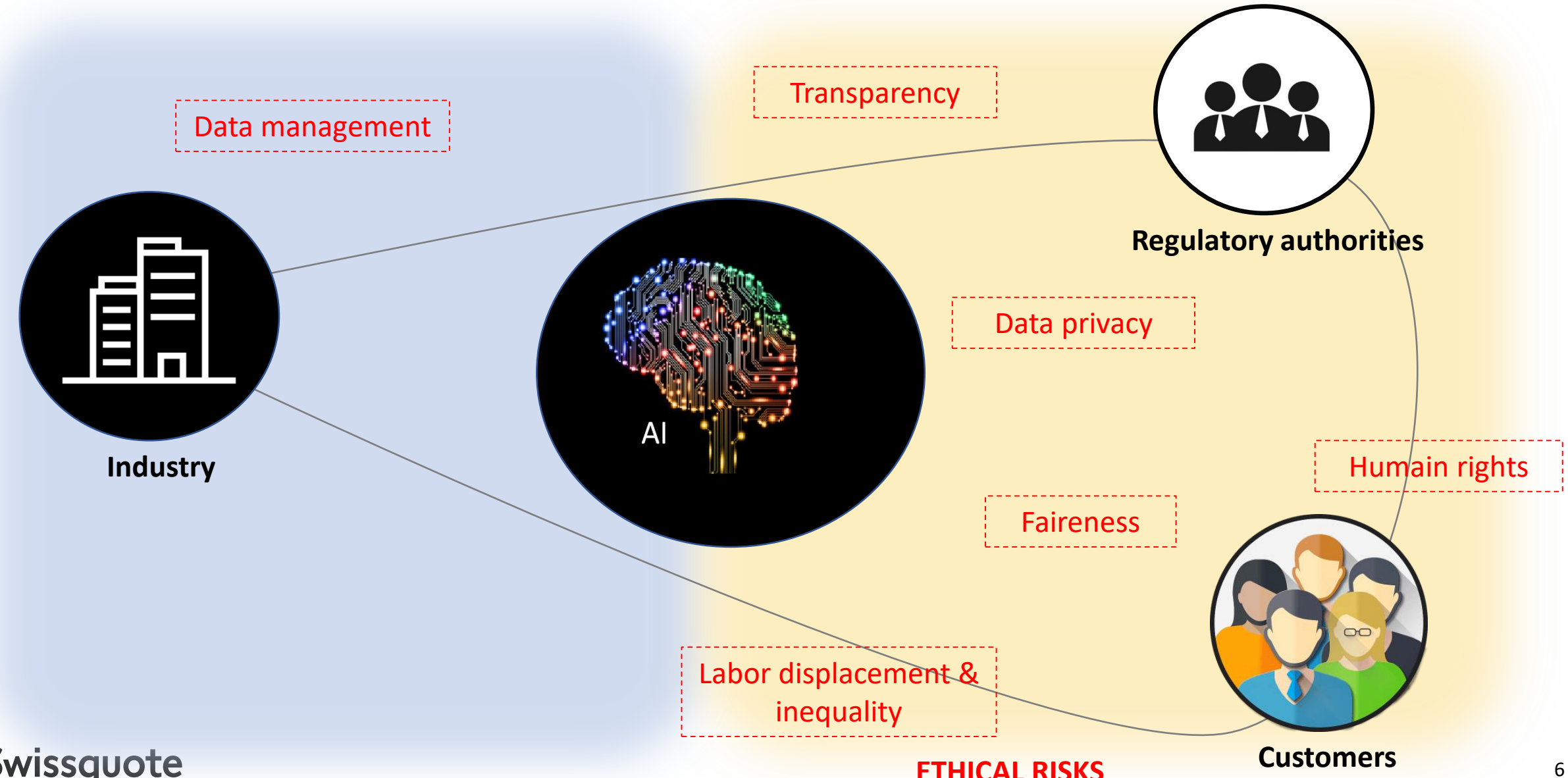

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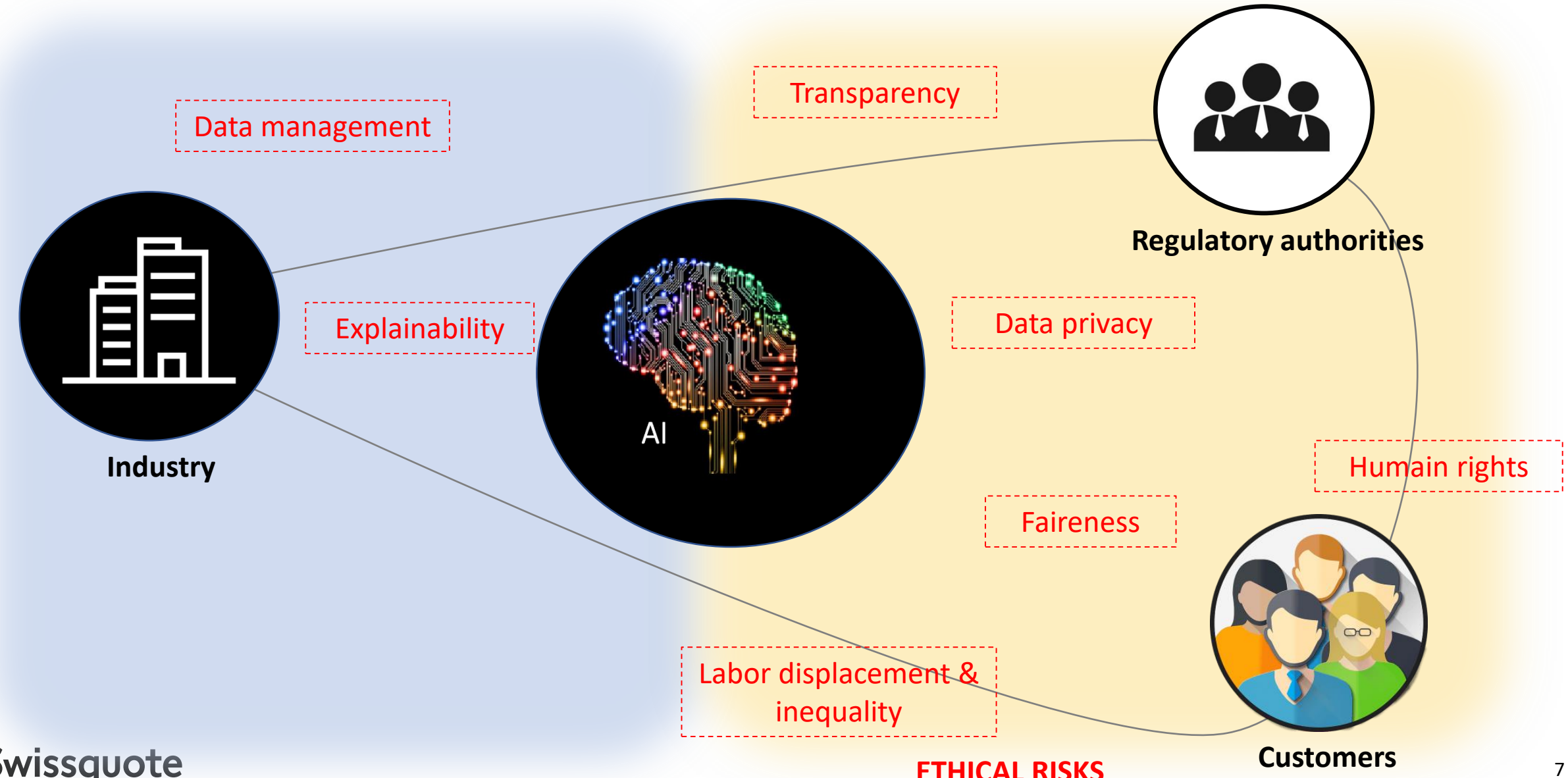

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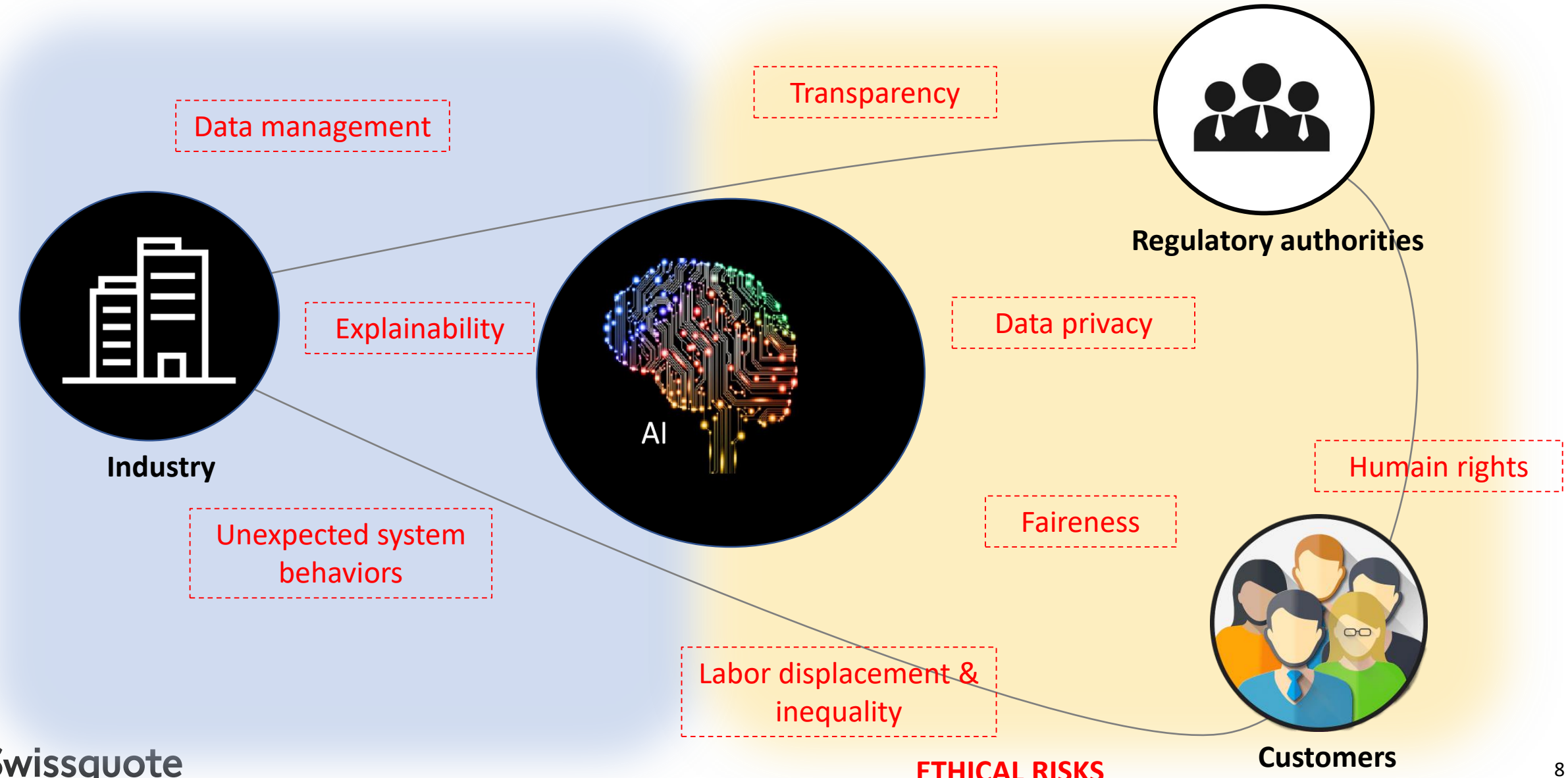

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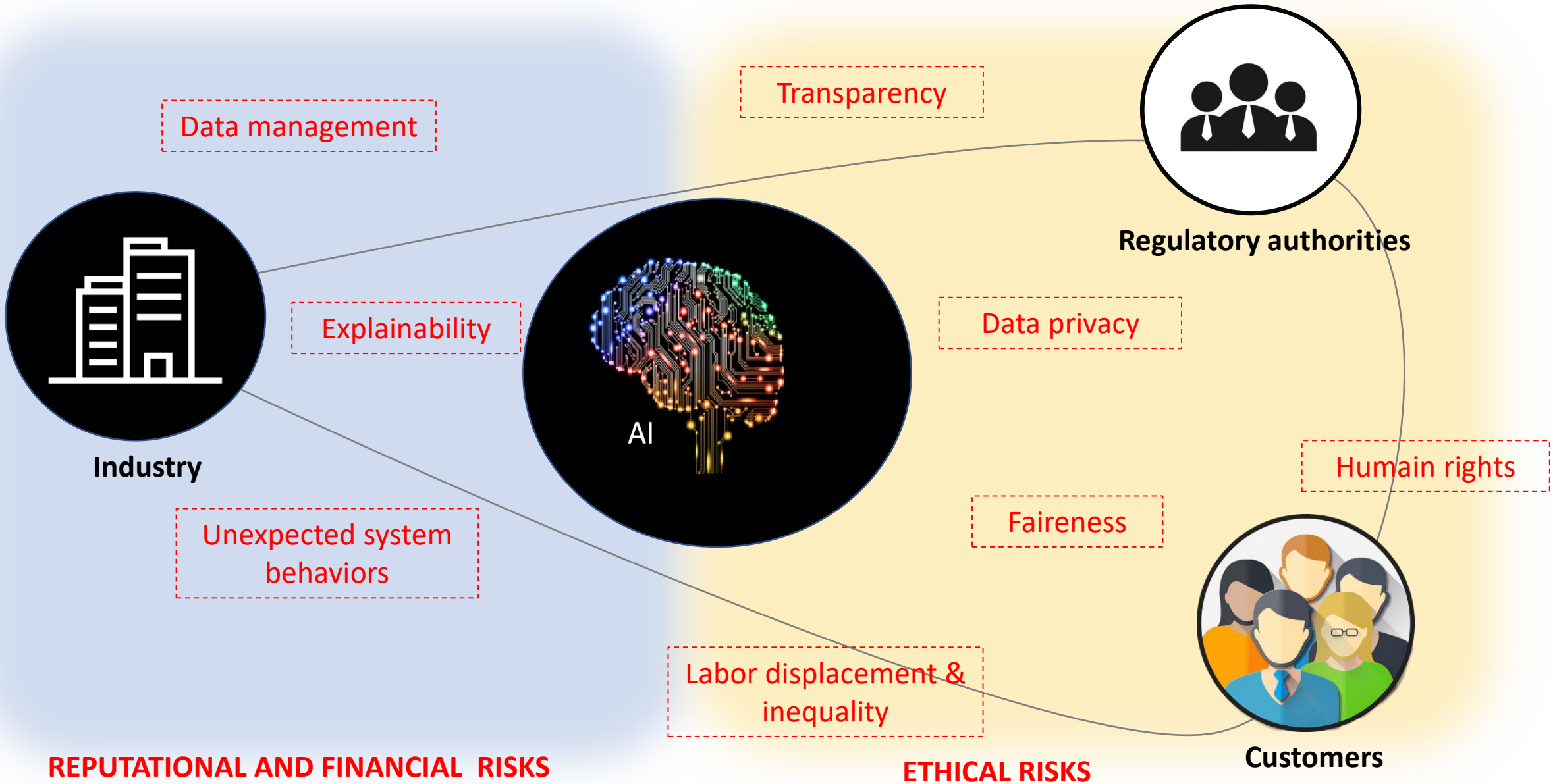
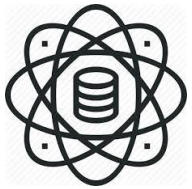


Building internal stakeholders’ trust in AI-based solutions

POC phase

Production phase



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Building internal stakeholders' trust in AI-based solutions

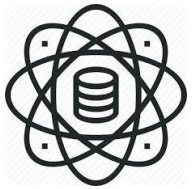
Running competing algorithms

Benchmarking against existing rule-based solutions

Challenging the approach

POC phase

Production phase



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Detection of insider traders (use-case N1)

Context:

- SQ had a proprietary rule-based algorithm to detect insider traders to report them to FINMA
- The main problem with this solution was a very high number of ‘false positives’ that had to be manually checked by legal officers

Objective:

- Developing a ML-based solution aimed at reducing a number of false positives without jeopardizing detection of real cases of insider trading

Main challenge:

- Convincing the main stakeholders (legal officers) that the new ML-based solution is trustworthy

Use-case N1: challenging the approach

- **Implementing competing ML unsupervised methods** (isolation forest, local outlier factor, one-class support vector machine, autoencoder)

  - ❑ 2 out of 4 approaches (isolation forest and autoencoder) showed consistently good results

- **Benchmarking against the existing rule-based solution**

  - ❑ 2 retained methods were able to detect all reported cases of insider trading in the backtests, while achieving 10 times reduction in the number of false positives

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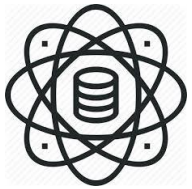

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Running competing algorithms

Benchmarking against existing rule-based solutions

Integrating experts' feedback

Delivering key insights to project stakeholders

Challenging the approach

Ensuring methodological transparency via internal communications

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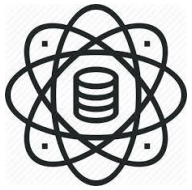

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'Frends & Family' tests

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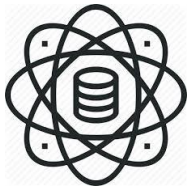

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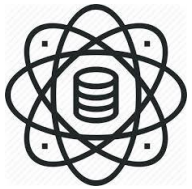
Systematic tracking of anomalies in the input data

POC phase

Production phase



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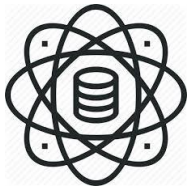


Automatic filters (rules to discard poor models)

Manual monitoring with a possibility to shut down problematic components

Systematic tracking of anomalies in the input data

Screening the output

Production phase

Swissquote

Indentifying traders' profiles (use-case N2)

Context:

- Understanding the actual needs of clients is crucial for offering them relevant investment products and services

Objective:

- Identifying which characteristics of a financial instrument a client is sensitive to (e.g., for a stock trader: technical or fundamental indicators?)

Main challenge:

- Controlling the quality of thousands of models which are dynamically retrained

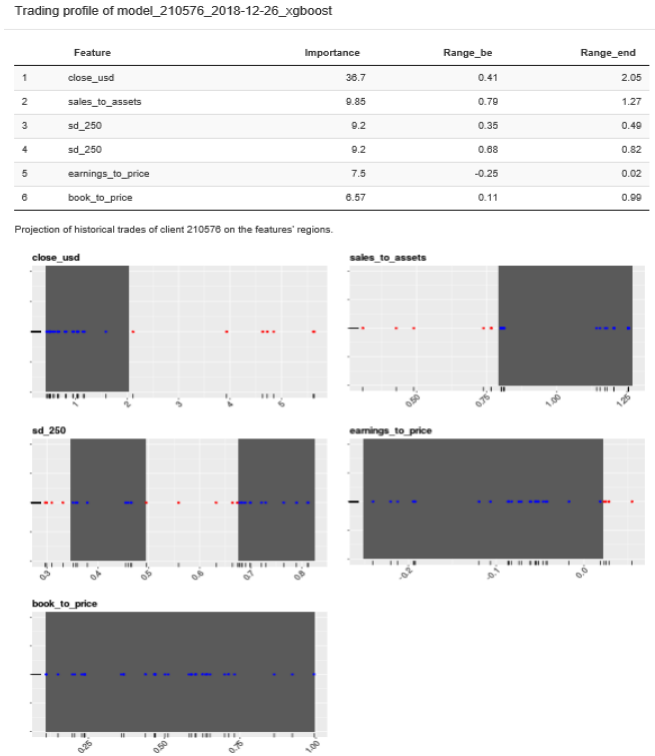
Use-case N2: screening models' output

- **Automatic quality checks**

  - ❑ Discarding 'poor' models by comparing performance metrics of trained classifiers to the ones of a 'dumb' classifier applied to imbalanced data

- **Real-time monitoring via a Shiny-application**

  - ❑ Comparing a trader profile learned by a model with past client behaviors


Trading profile of model_210576_2018-12-26_xgboost

	Feature	Importance	Range_be	Range_end
1	close_usd	36.7	0.41	2.05
2	sales_to_assets	9.85	0.79	1.27
3	sd_250	9.2	0.35	0.49
4	sd_250	9.2	0.68	0.82
5	earnings_to_price	7.5	-0.25	0.02
6	book_to_price	6.57	0.11	0.99

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POC phase

Automatic filters (rules to discard poor models)

Manual monitoring with a possibility to shut down problematic components

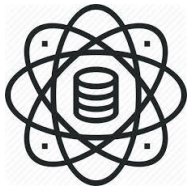
Incremental improvements

Systematic tracking of anomalies in the input data

Screening the output

Measuring the impact and clients' satisfaction

Production phase



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Take-aways

- A lack of trust among internal stakeholders can be an important blocker for the active integration of AI initiatives

- Putting in place a range of good practices and procedures to follow over the product development cycle could mitigate this problem

Thank you!