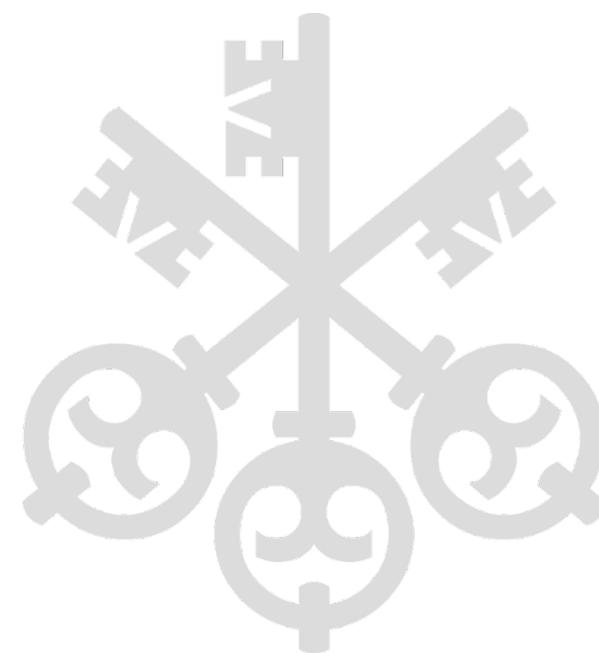


Looking for Artificial Intelligence

Use Cases of **Machine Learning** for Inhouse Lawyers

Dr. Katja Zwiker / Georges Schmid
Legal Payments & Digital Products



August 30, 2018



Strategic Rationale

Why UBS and its Inhouse Lawyers care about Machine Learning

- Business Solution Center Manno (Lugano)
Dalle Molle Institute for Research in Artificial Intelligence (IDSIA)
- Time to Modernize the Legal department
 - JP Morgan Chase's COIN (Contract Management) – 360'000 hours of lawyer work saved?
 - Cost efficiency and changed expectations of our "clients"
 - New role / business model - scaling effects?

UBS Annual Report 2017 – Market Climate and Industry Trends

*[...] While IT spend used to be considered a means to make banks more efficient, it has now become an **imperative to stay** relevant in the face of competition from other banks as well as non-traditional financial services providers.*

*[...] We believe that technology-driven changes in bank operations will allow efficiency gains through automation. Technologies such as **artificial intelligence** and **robotics** can be used to automate selected back- and middle-office processes, thus reducing error rates and increasing efficiency.*

Source: www.ubs.com/annualreporting

Video 1

UBS Companion



UBS Companion

Beta – the new test-label for concepts and prototypes under development

Pilot using Digital Assistants

Different types of avatars

- **Hyper-realistic** Daniel Kalt
- **Abstract** Fin

Assisting functions

- **Client instructions**
e.g. ordering of annual account statements, credit cards
- **Information requests**
Data on financial markets and the economic situation

Partners

- **IBM** AI based Conversational Platform of IBM Watson
- **FaceMe** Affective-Computing-Interface

AI components

- Natural Language Processing (NLP)
- Cognitive capabilities
- Neural Networks?



Daniel Kalt - Regional Chief Investment Officer CH

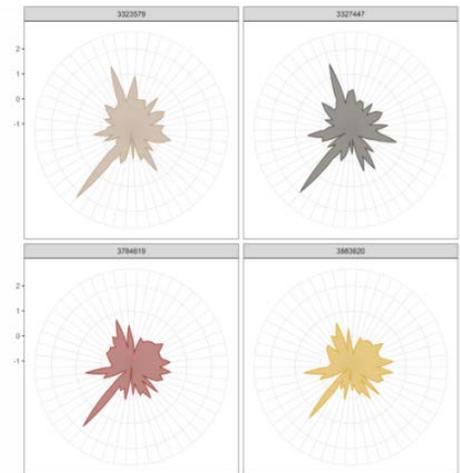
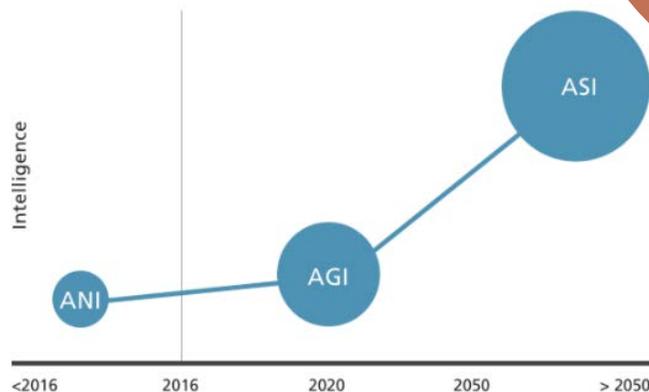
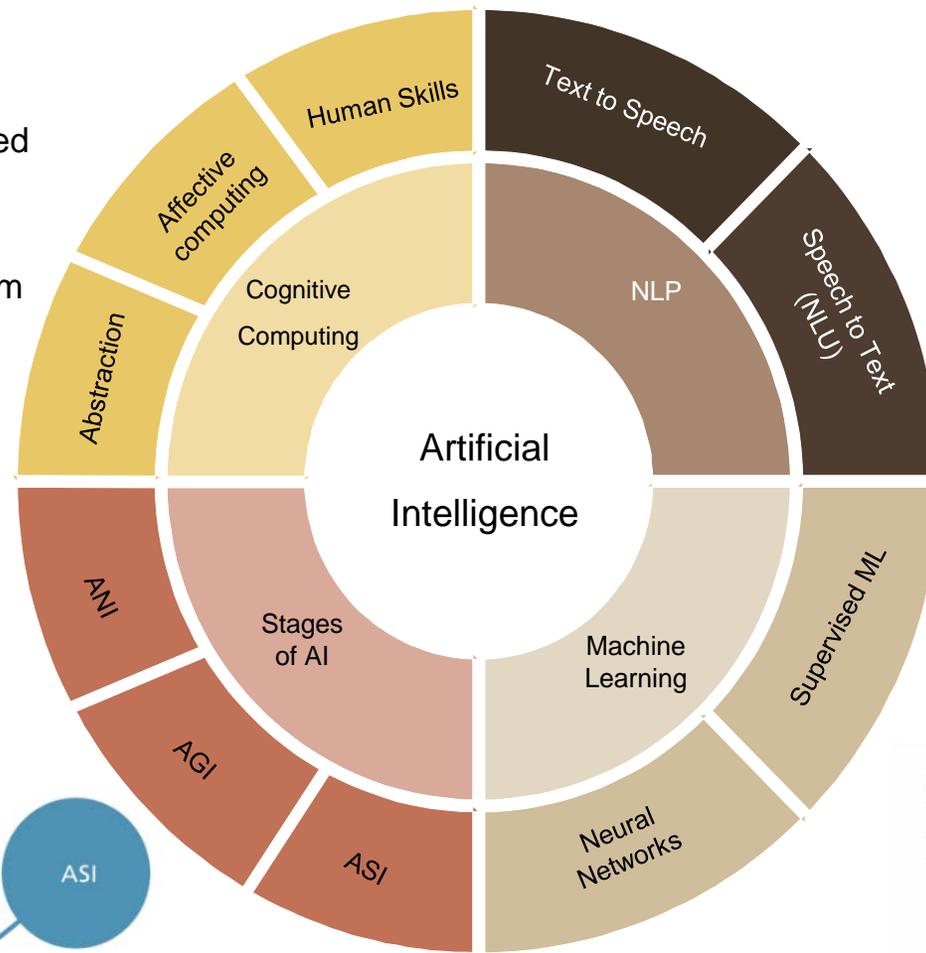
AI as Umbrella Term

Supervised ML

- Maps input to output based on example input-output pairs
- Algorithm generalizes from training data/example to unseen situation

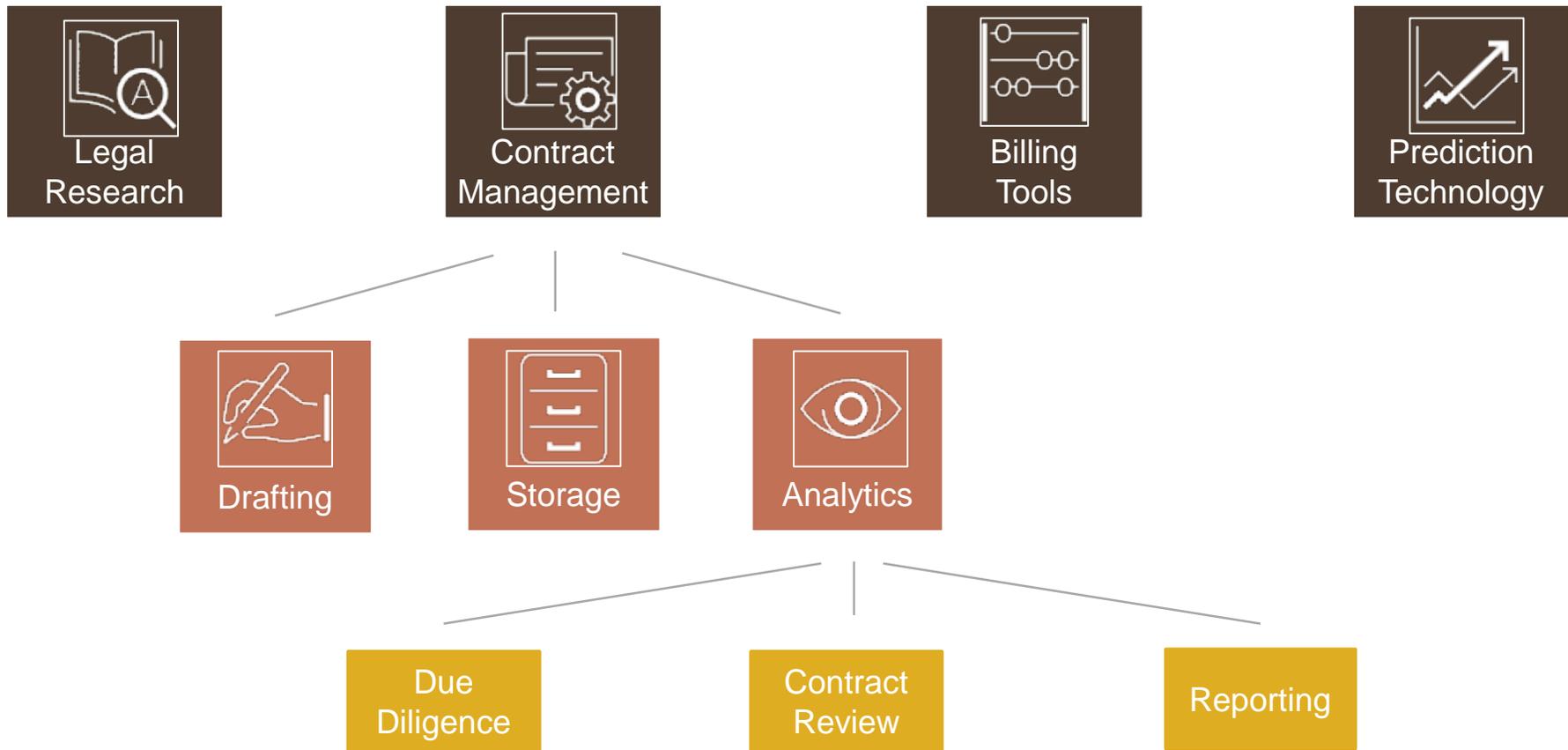
Non-supervised ML

- Algorithm inferring structure/classification from unstructured data
- No direct evaluation
- E.g. clustering ("Golden Rule")



Legal AI Landscape

Categories of use cases where AI could **support us**

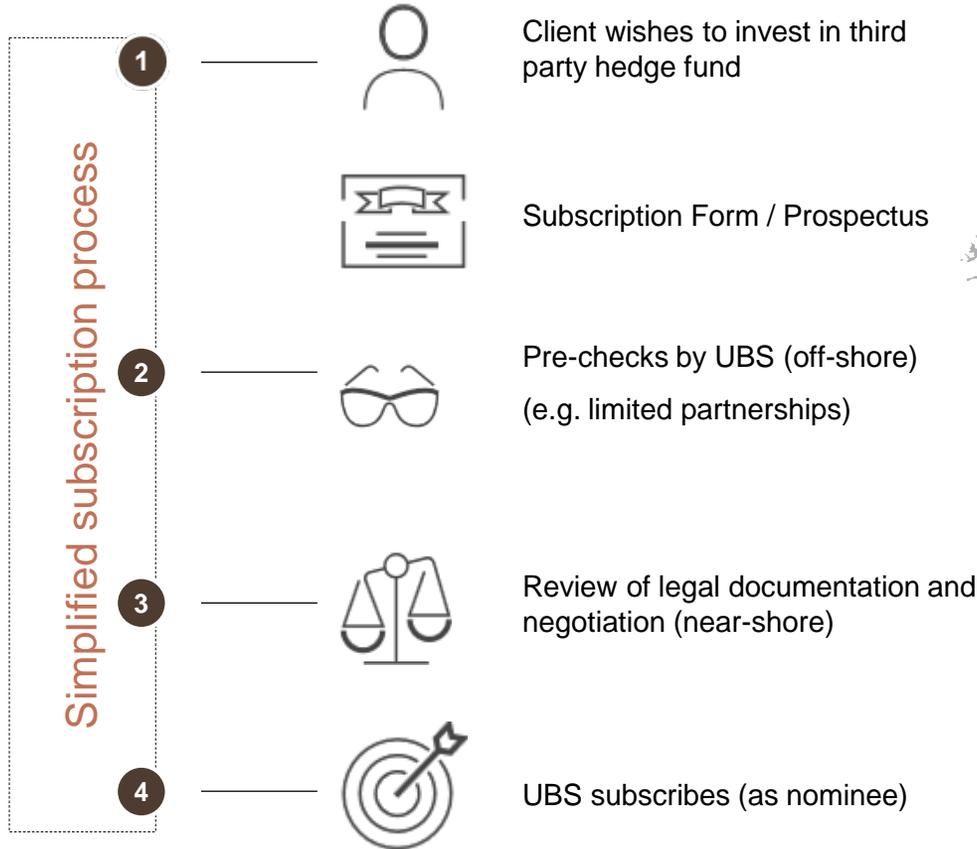


AI potential in particular in the field of analytics

Use Case: Fund Assessment

Review of Fund Documentation

Hedge Fund Subscription



Key success factors: standardized workflows & scalability

Video 2

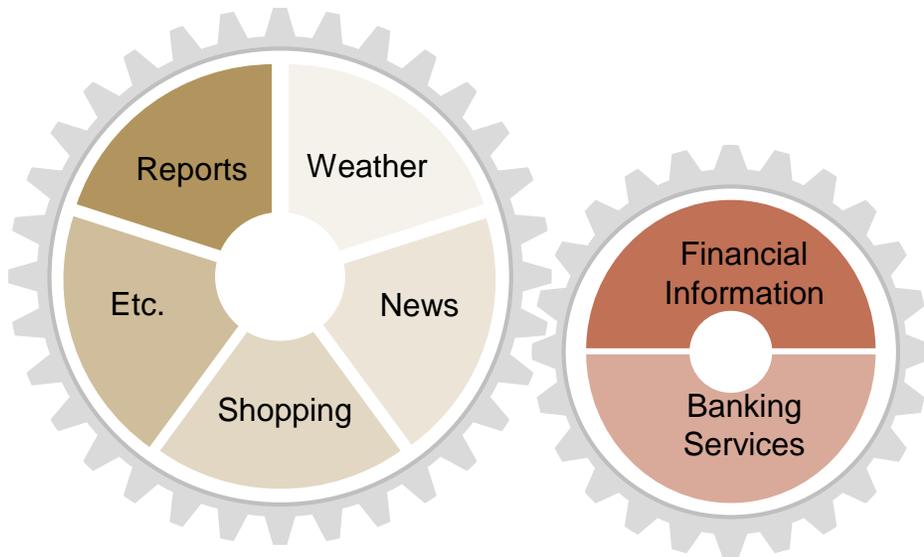
Ask UBS



Use Case: Ask UBS

Banking, then and now

Testing the frontiers of science fiction and wealth management



FINMA Circular 2008/21 Operational Risk – Banks, annex 3, no 20

If CID is stored outside of Switzerland or if it can be accessed from abroad, increased risks associated with respect to client data protection must be adequately mitigated. CID must be adequately protected (e.g. anonymized, encrypted or pseudonymized).

Use Case: Machine Translation (1/3)

Current **Challenges and Requirements** to be fulfilled by ML-Solution



■ **Vast amount of legal documentation**

Standard forms, GTC, terms of use, tailored agreements etc.



■ **Global bank and international clients**

Multitude of languages and translation processes



■ **Corporate Identity**

UBS terminology (Tone of Voice)



■ **Legal jargon**

Legal terminology, consistency



Is **Neural** Machine Translation the solution?

Use Case: Machine Translation (2/3)

Translation **Examples**

UBS GTCs Excerpt

5. Pfand- und Verrechnungsrecht



[...]

UBS ist zur freien oder zwangsrechtlichen Verwertung der Pfänder berechtigt, sobald der Kunde mit seiner Leistung in Verzug ist.

5. Lien and set-off



[...]

In the event of default on the part of the client, UBS shall be entitled to realize the pledged assets either by forced or by private sale.



Statistical Machine Translation (SMT)

1

UBS is entitled to free or obligation-legal utilization of the distrainor, as soon as the client with its performance is in credits.

Neural Machine Translation (NMT)

2

UBS is entitled to the free or legal use of the pledges as soon as the customer is in default with his performance.

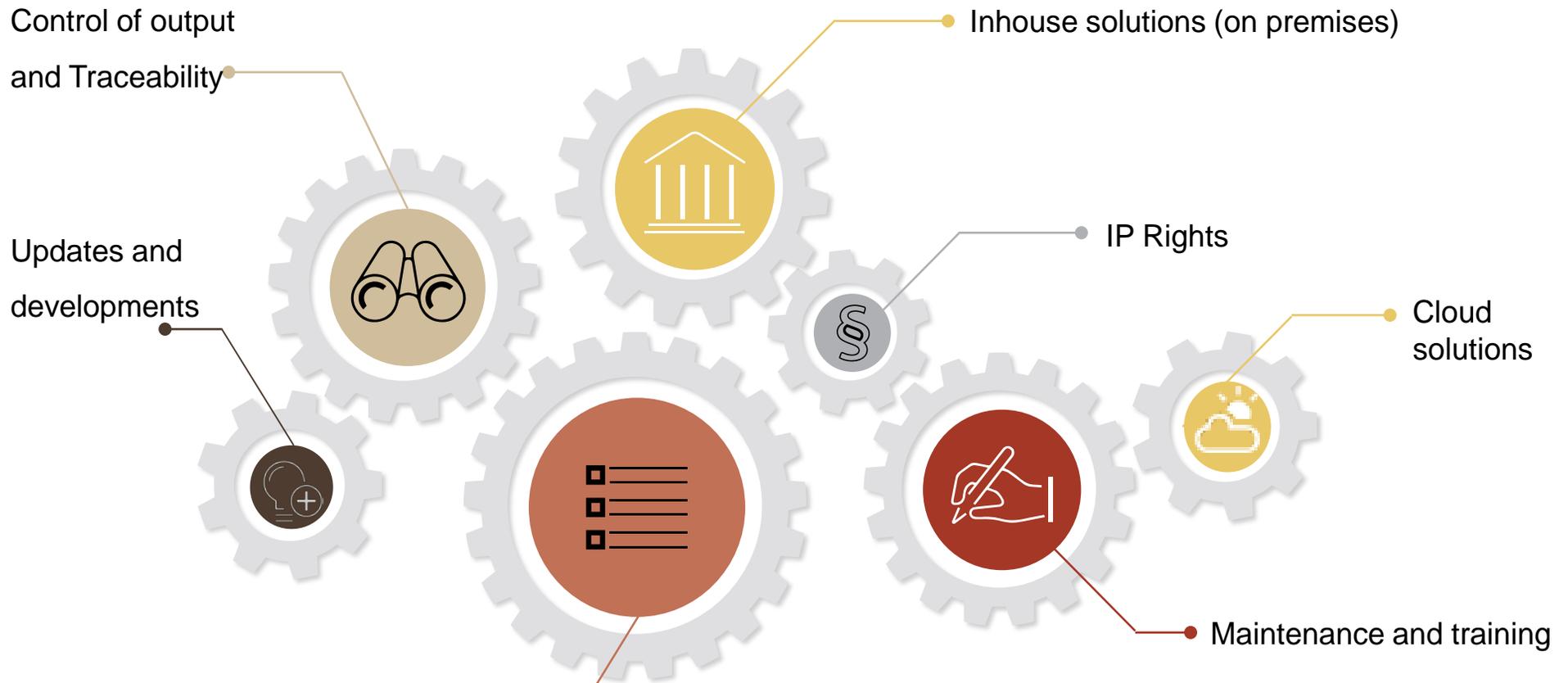
3

UBS is entitled to the free or compulsory utilization of the pawns as soon as the customer is in default with his performance.

Version "proof read" by Legal adequately reflects jargon and tone of voice

Use Case: Machine Translation (3/3)

Technical and Legal Aspects



Types of Machine Translation

Squaring the circle? A complex use case linked with strategic decisions

Closing Remarks

For the moment, AI activity remains focused on specific domains. The question remains if we can one day bring all these domains together to achieve “artificial general intelligence” or “strong AI” – that is, build machines able to achieve goals in a wide range of contexts, and deal with change and uncertainty as easily as we humans do.

UBS Group Innovation [White Paper](#), Intelligent Automation, p. 8

