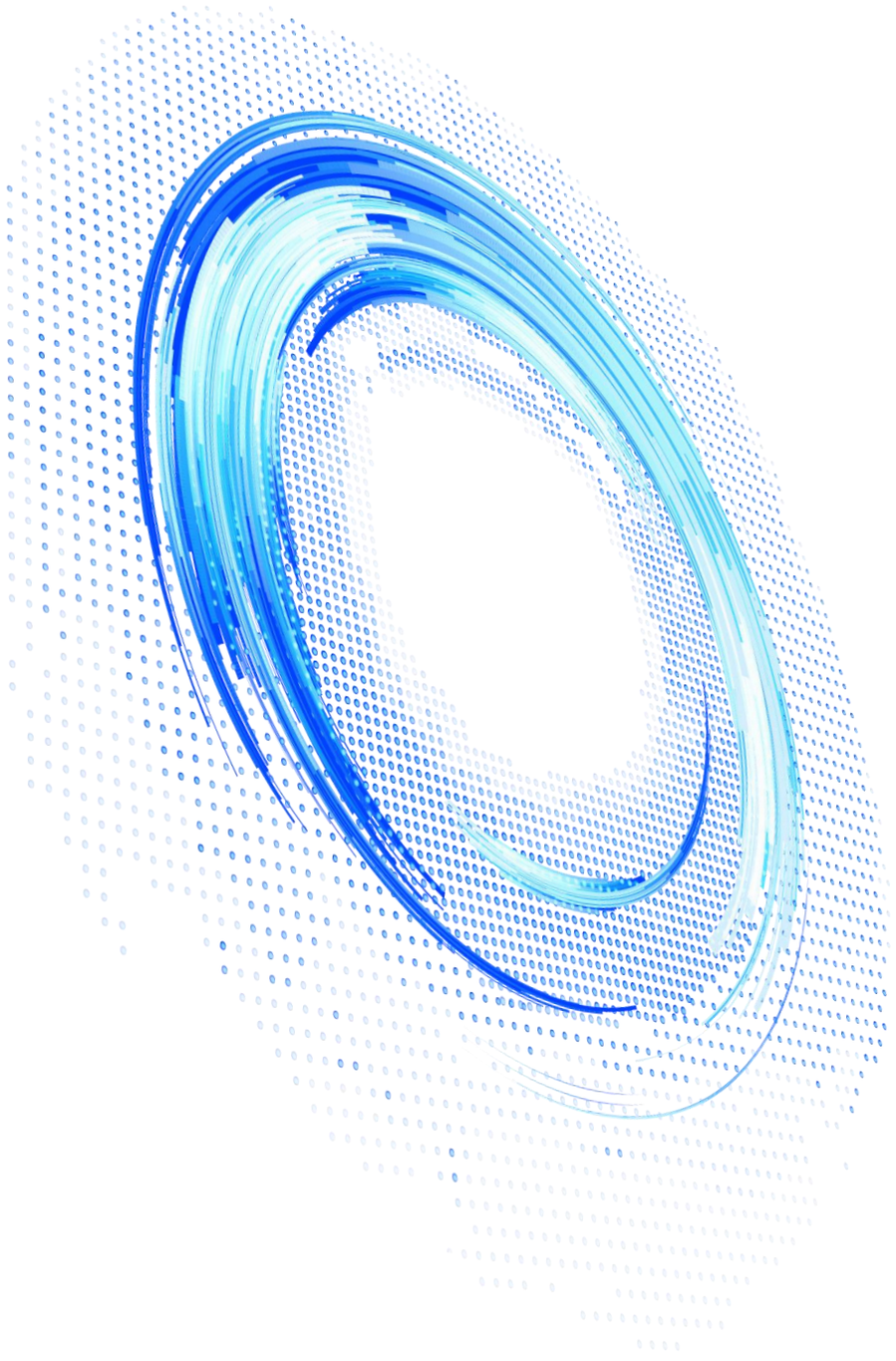


RETELIT

Artificial Intelligence and Machine Learning: opportunities and roadblocks in the Wholesale Industry

PACIFIC TELECOMMUNICATIONS COUNCIL

PTC'20 | VISION 2020 AND BEYOND

19-22 JANUARY 2020 | HONOLULU, HAWAII

Agenda

- Who is Retelit
- AI and ML Common Definitions
- A real life ML project: Machine Learning application for e-mail process optimization
- Other Opportunities
- Conclusions

Retelit
Who we are

www.retelit.it | @retelit

RETELIT

We design digital and ICT solutions for national and international companies (wholesale operators and enterprises).

Based in Italy

20 years old

MEMBER OF

AAE1 open hub med ngena

Artificial Intelligence and Machine Learning definition

AI&ML Definitions

1956 – J. McCarthy, Dartmouth College, identifies abilities requested to any AI: Automation, Programmability, Neural Nets, Computation Size Theory, Self-improvement, Abstraction, Randomness and Creativity

Today AI means: simulation of intelligent behavior with computers and capability of a machine to imitate intelligent human behaviour

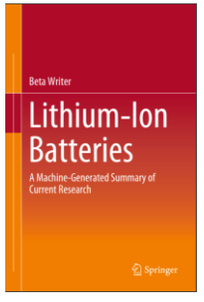
AI scope in very broad in theory and ML is a subset of it; the definition does not include any identification of the “intent” (e.g. a cat is looking the bird because it wants to eat it)

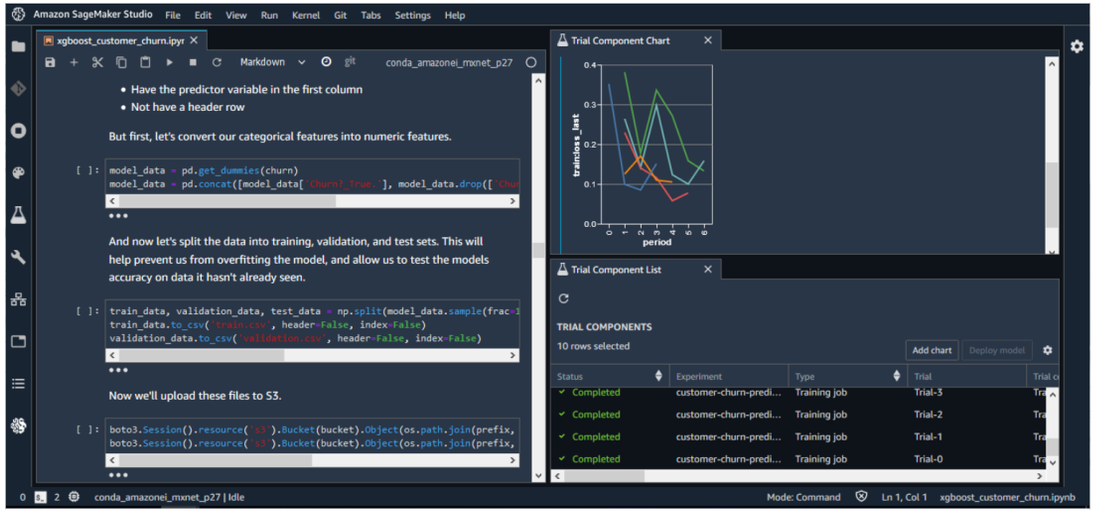
Formally in Italy Academic work on ML and AI can be traced back to the ‘80s

AI&ML Today

OTT's are leading the way "AI is everywhere"

- **Enablers:** computing resources, Big Data, Software Development armies, semantic languages and bandwidth lot of it…
- **Applications:** voice enablement, mail analysers, disease identification, accademic books writing, self driving car (L1 and L2)…





Facebook starts policing deepfakes – with room for improvement

By **Julia Schmidt** - January 7, 2020

Opportunities:
Machine Learning application for e-mail process optimization (quotations/pricing)

A real life project

THE CANDIDATE PROJECT:

- Wholesale quotation activity produce thousands of e-mail with unstructured data (location A and Z, bandwith type of service, contract duration...)
- Company Executive requires accurate forecasts and funnel
- Standard CRM applications are too much time consuming for individual salesman/saleswoman
- High entrance costs and ML customization time and retrains render a simple ML email interpreter or a regular expression machine requires a two to three years investment
- Decision: use a ML approach to extract data and create structured dataset for further analisys and/or to feed our CRM

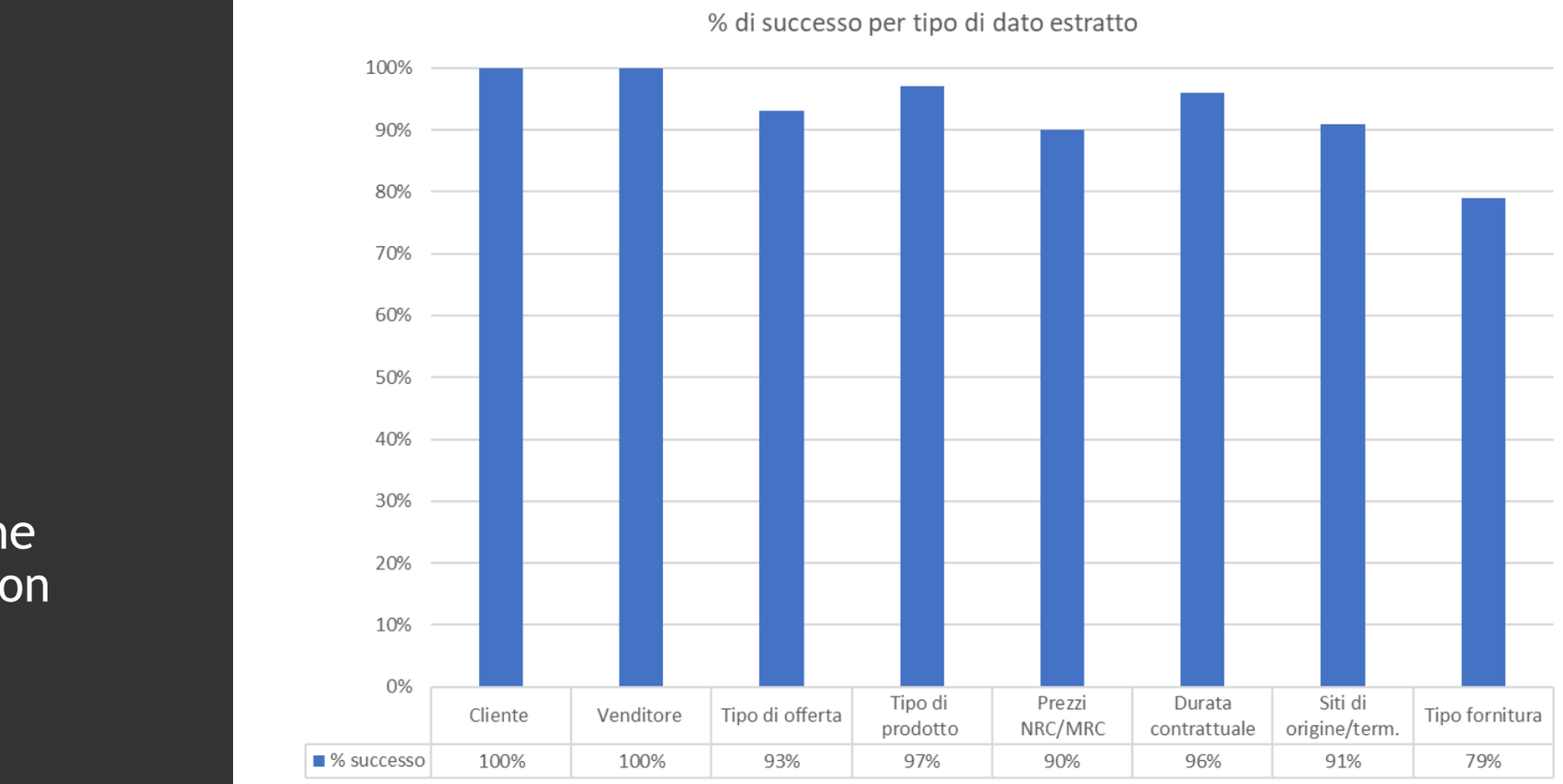
How we did it:

- **Software**: Essense.AI engine
- **Algos**: NLP and weakly supervised ML
- **Time to develop**: 1 month (prototype), 3 months to production
- **Datapond**: 14K emails per year
- **Mail thread identification**: yes
- **Training set**: 10% of Universe
- **Validation set**: 5% of Universe
- **Accuracy**: today close to 96%
- **Languages**: Italian and English

Results

This is an example of the accuracy of ML extraction of lines delivery data.

RETELIT ACCURACY RESULTS' 2019



	Cliente	Venditore	Tipo di offerta	Tipo di prodotto	Prezzi NRC/MRC	Durata contrattuale	Siti di origine/term.	Tipo fornitura
% successo	100%	100%	93%	97%	90%	96%	91%	79%

Pro: ability to forecast Business Analytics and make predictions and market trends

Cons: None

Other Opportunities

AI opportunities for wholesale network operators:

MARKETING&COMM

GeoMarketing prediction for network development

NETWORK ASSURANCE

Log correlation for preventive maintenance

Usage of “public available” Dataset to predict required Planned maintenance for Public works

NETWORK PLANNING

Real Time traffic prediction for Optimal network planning

Roadblocks

Wholesale industry is «old»
no internal knowledge and experience on AI
> **NOT READY FOR IT**

AI project are always disruptive
> **FEAR**

AI project return is not only the headcount saving
> **WRONG ROI EVALUATION**

AI&ML vendor business propositions often not fit with Customer requirment
> **WRONG PRODUCT PLACEMENT**

AI&Machine Lerning for wholesale operators Conclusions

Funny facts (but true) about ML and AI

- These toys are good for kids who work for OTTs
- We don’t trust machine (read: machines, not computers) 100%: Engineers do it better
- The average Wholesale Company does not perceive the difference between automation, inference and artificial learning

Funny facts (but true) about ML and AI

- “We don’t have Phyton programmers”
- “Aw! You do AI in your network. How long is that we do not review our peering agreements?”
- “Yes: we have it all – our AI <brain> is that Sun server down there in the corner”

Wholesale Application and Process

Traffic flows optimization with traffic paths definition, under the possibility of flows splitting has a linear solution is solvable in polynomial time

This data can feed the Orchestrators with real time determination of the traffic matrix, which, in turns orchestrate best, optimal, suboptimal and disjoing link outages (30% of total outages)

AI for near real time traffic optimization

It can as well used to make some traffic predictions

Sadly it isnt’s not wide adopted (e.g. when marketing your wholesale product **DO NOT DARE TO SAY** that AI makes paths predictions, everyone feels safe with the upgrade at 60% capacity rule)

AI for near real time traffic optimization

IMPACTS:

- The 60% rule means overengineering and relying on an NP-HARD problem (metrics optimization), still it’s the rule
- Use of appropriately trained Neural Networks can mimic accurately the flows and predict where and when implement a capacity upgrade
- Without at least statistical accuracy we spend more than we need to upgrade the network or roll-out our services.

“Without ML, Amazon.com couldn’t grow its business, improve its customer experience and selection, and optimize its logistic speed and quality”

Thanks

Diego Teot

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