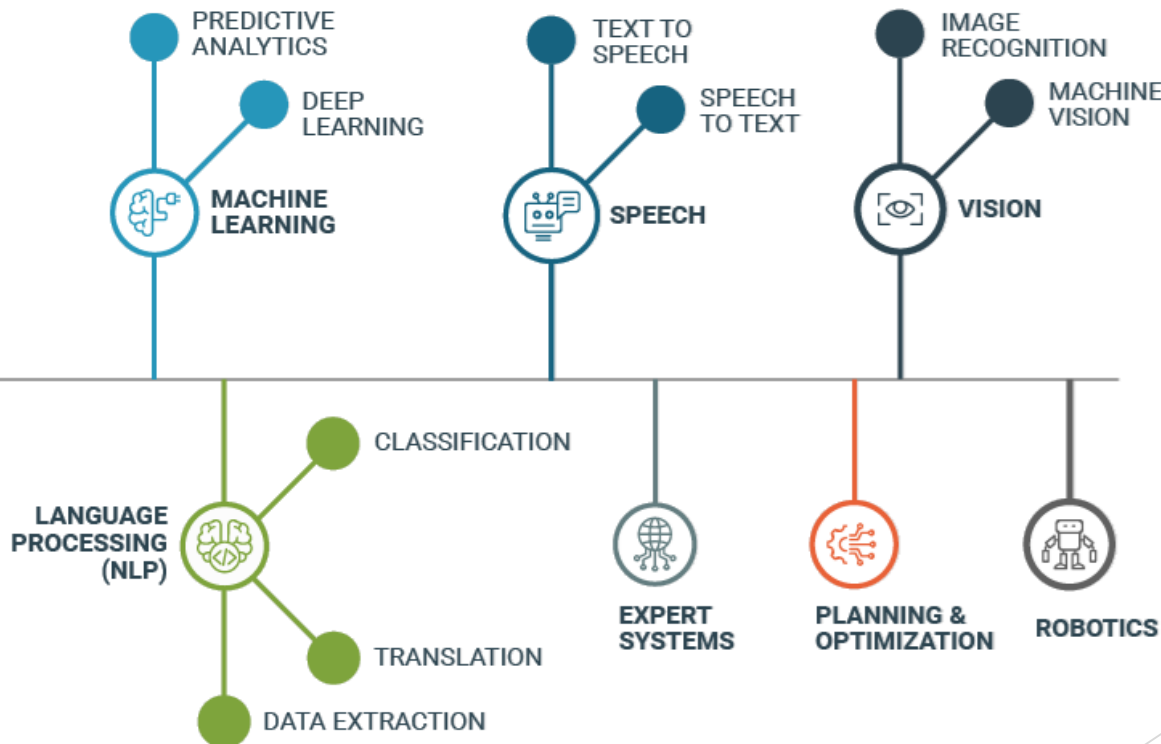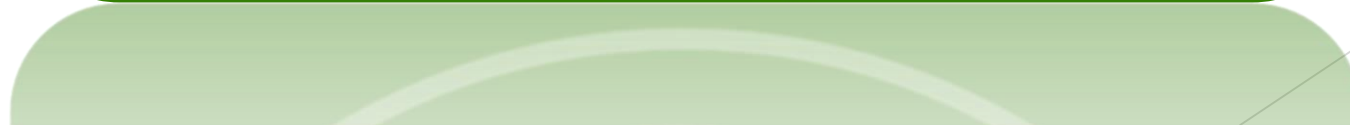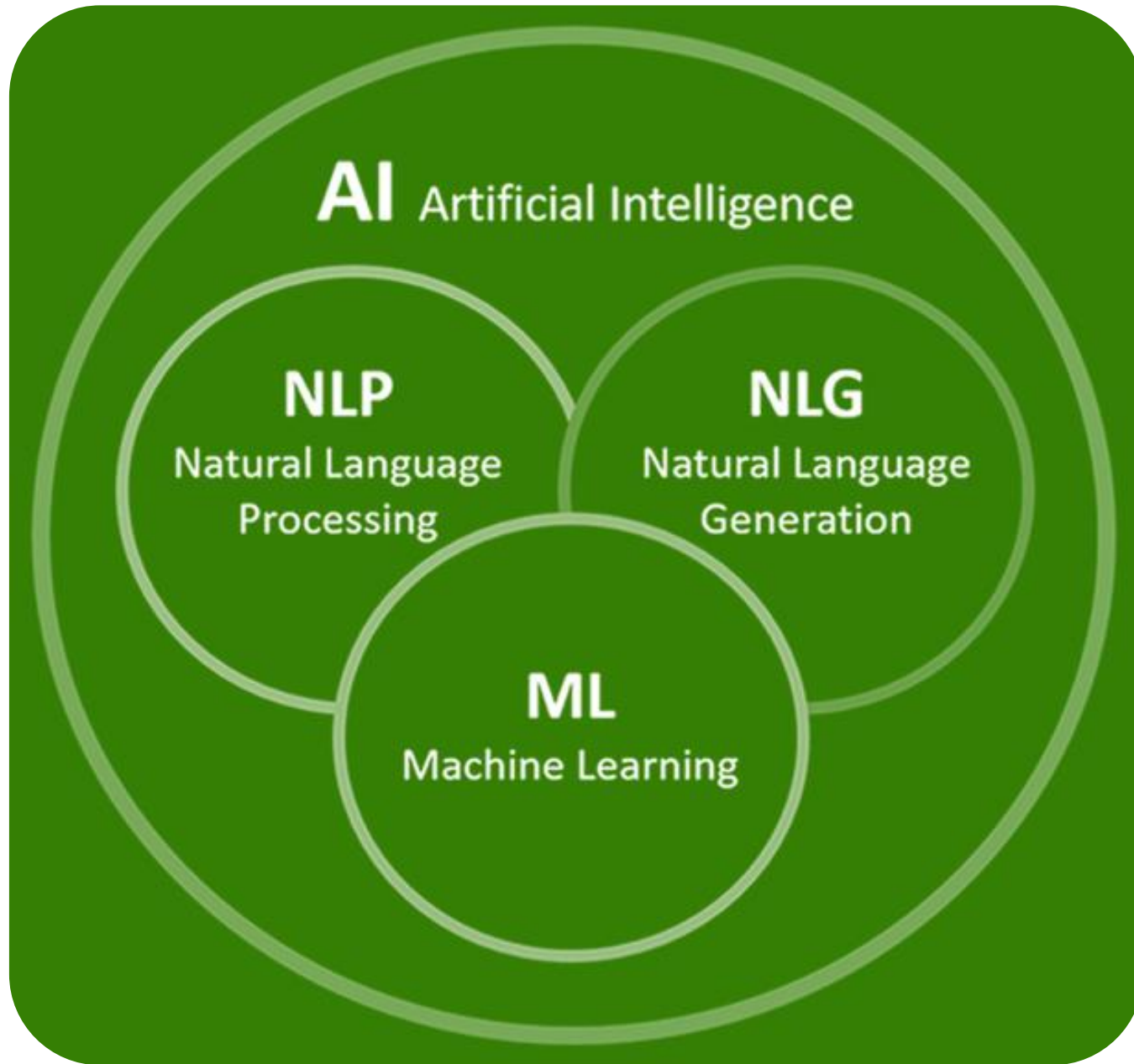# NLP and ML in Banking!

Ammar Jalalimanesh

What is AI?

- AI is a collection of technologies that includes ML, natural language processing (NLP) and robotics that allow machines to sense, interpret, act and learn on data to aid decision-making.

ARTIFICIAL INTELLIGENCE

PREDICTIVE ANALYTICS
DEEP LEARNING
MACHINE LEARNING

TEXT TO SPEECH
SPEECH TO TEXT
SPEECH

IMAGE RECOGNITION
MACHINE VISION
VISION

CLASSIFICATION
LANGUAGE PROCESSING (NLP)
TRANSLATION
DATA EXTRACTION

EXPERT SYSTEMS

PLANNING & OPTIMIZATION

ROBOTICS

G2 CROWD

Why does it matter?

- AI will disrupt and transform the relationship between people and machines, and drive greater productivity in businesses.
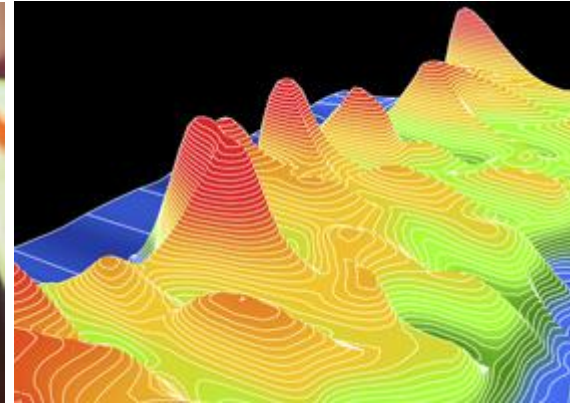
AI Adoption in the Enterprise

Financial services
Fraud detection, ID verification

Government
Cyber-security, smart cities and utilities

Energy
Seismic and reservoir modeling

Retail
Video surveillance, shopping patterns

Health
Personalized medicine, image analytics

Consumer tech
Chatbots

Service providers
Media delivery

Manufacturing
Predictive and prescriptive maintenance

AI Market!

ARTIFICIAL INTELLIGENCE (AI) MARKET

North America Artificial Intelligence (AI) Market (US$ Bn), 2018

$9.72 Billion

NORTH AMERICA

EUROPE

ASIA PACIFIC

THE MIDDLE EAST & AFRICA

LATIN AMERICA

Global Artificial Intelligence (AI) Market (US$ Bn), 2018 to 2026

2018 – 20.67 Bn   2026 – 202.57 Bn

Global Artificial Intelligence (AI) Market Share, By Technology, 2018

Natural Language Processing

22.5% - Computer Vision

Machine Learning

Others

Natural language processing (NLP)

London is the capital and most populous city of England and the United Kingdom. Standing on the River Thames in the south east of the island of Great Britain, London has been a major settlement for two millennia. It was founded by the Romans, who named it Londinium. London's ancient core, the City of London, largely retains its 1.12-square-mile (2.9 km2) medieval boundaries.

Steps in Natural Language Processing

- Lexical Analysis
- Syntactic Analysis (Parsing)
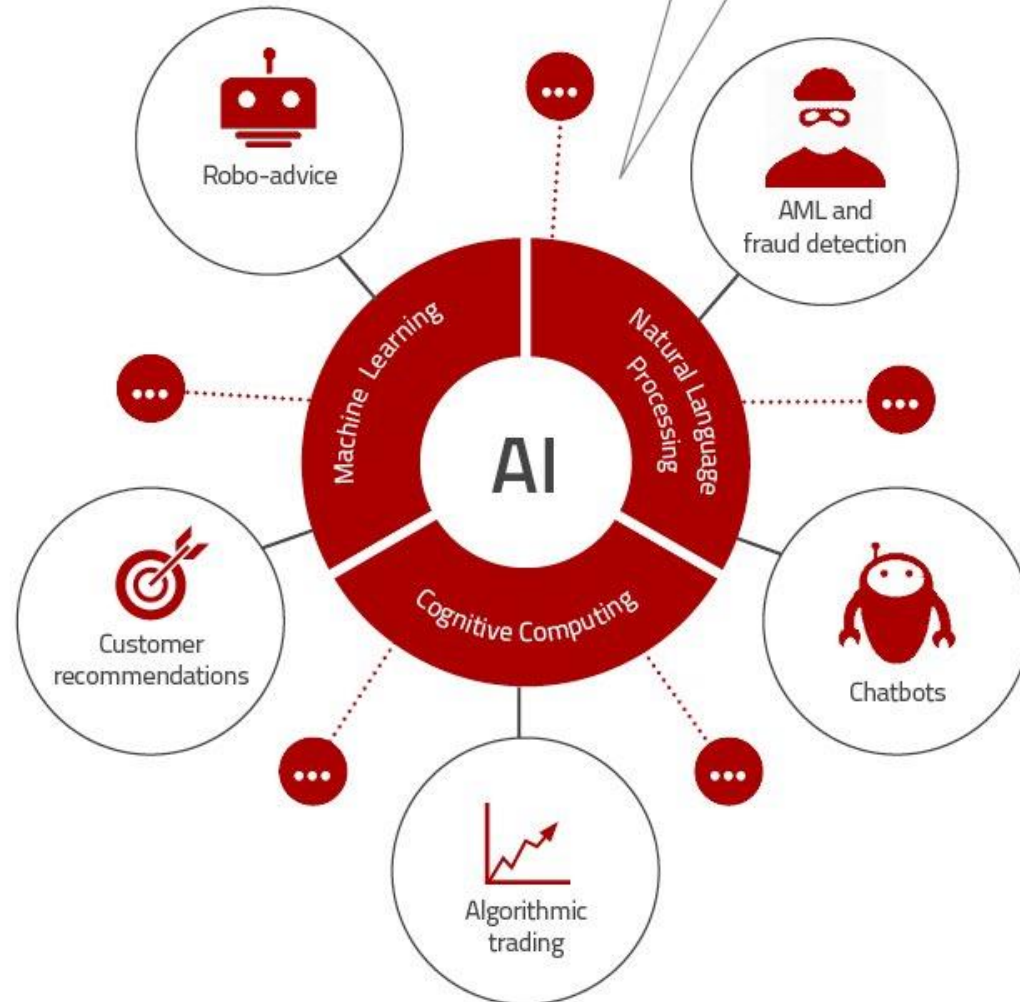- Semantic Analysis
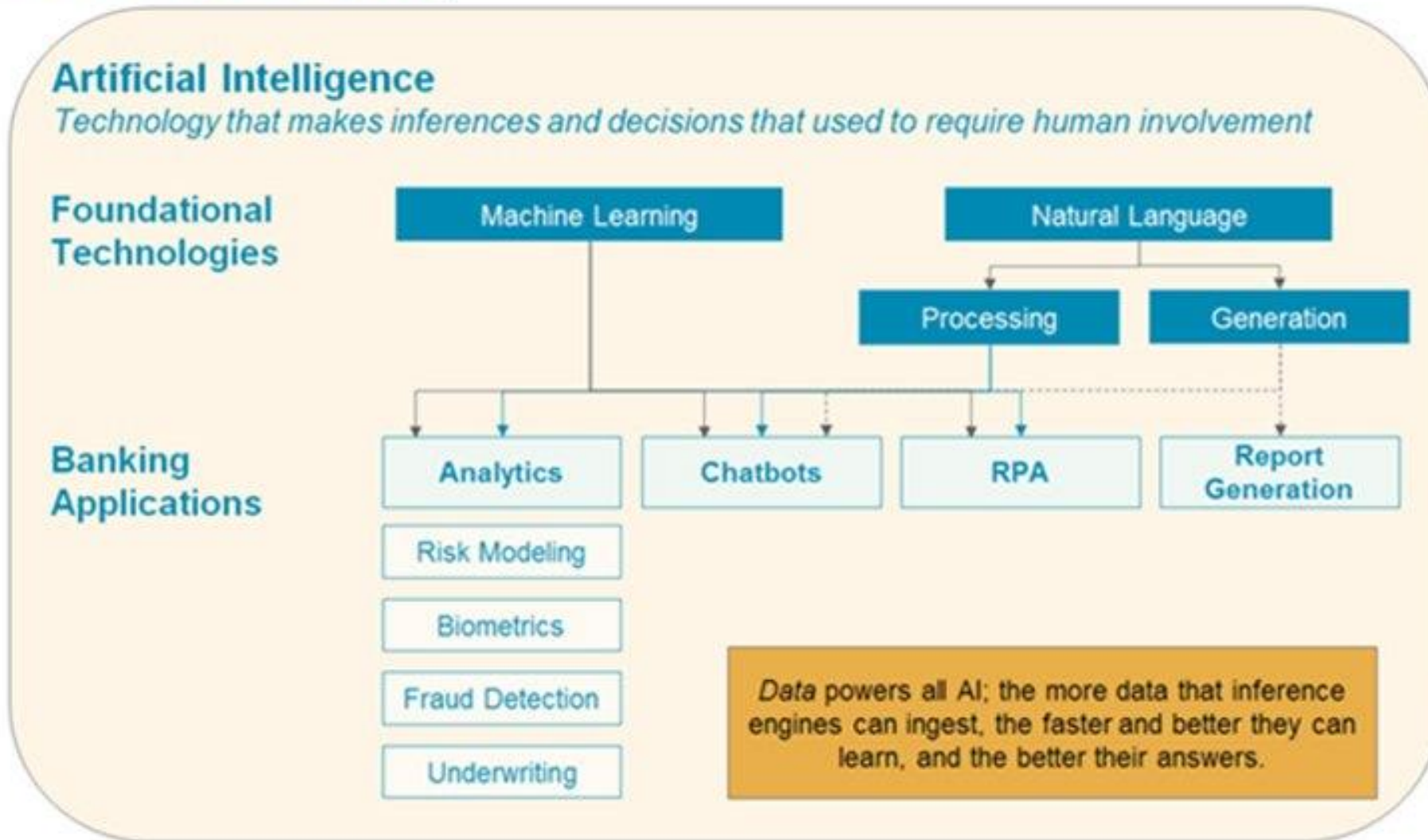- Discourse Integration
- Pragmatic Analysis

AI applications in financial services

SOURCE: Efma © September 2017 The Financial Brand

Artificial Intelligence in Banking

Artificial Intelligence
Technology that makes inferences and decisions that used to require human involvement

Foundational Technologies			
Machine Learning		Natural Language	
		Processing	Generation

Banking Applications			
Analytics	Chatbots	RPA	Report Generation
Risk Modeling			
Biometrics			
Fraud Detection			
Underwriting			

Data powers all AI; the more data that inference engines can ingest, the faster and better they can learn, and the better their answers.

Source: Celent analysis. Arrows represent influence of source on target.

Social robots in banking

RoboDoc: an interactive social robot for research assistantship.