The ABCs of AI
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Disruptors (& opportunities)

- Blockchain & Quantum Databases
- Data Analytics
- AI & Robotics
- IoT & Surveillance
- Global Real Estate Consolidation
- Mobile Workforce & 5G
We help our organizations…

**TRANSFORM TO A NEW WAY OF WORKING**
- Optimize IT infrastructure
- Automate business processes

**MITIGATE RISK**
- Set & enforce Policy
- Enable compliance & audit requests
- Protect IP
- Comply with PD obligations

**EXTRACT VALUE FROM INFORMATION**
- Manage Information Lifecycle
- Enable restoration & recovery
- Apply intelligence
AT A GLANCE:
› AI
› Robots
› Data ethics
› Our opportunities
Organizations typically use only 5% to 10% of the data they collect.
Why extract value from data?

Rapid product life cycles
  • Build quicker
  • More efficiently
  • Tailored solutions

Customer service enhancements

Leaner, faster operations

Research/experimentation

Advances in healthcare

Improved social services

Monetization
Auto-classification – enriched metadata
Rules assignment: retention, privacy
Workflow implementation
Easier access to information in all formats
  • Natural language searches

Convert unstructured to structured data
Challenge: data access

- Millions of boxes of paper records
- Images held in repositories
- Data on tape and fiche
- Data in file shares, SharePoint farms etc.
- Data in multiple clouds

5G = 20x+ 4G = continued exponential growth
How AI works
Why now?

• Increased compute power
• Massive data volume
• Sophisticated algorithms

“GDP growth dependent on shift from consumption to productivity”

Bill Meaney, IRM CEO
What is AI & ML?

Artificial Intelligence
Any technique which enables computers to mimic human behavior

Machine Learning
Subset of AI techniques which use statistical methods to enable machines to improve with experience

Deep Learning
Subset of ML which makes the computation of multi-layer neural networks feasible
Artificial Intelligence (AI)

Field of computer science dedicated to the study of computer software to make intelligent decisions, reasoning and problem solving

Uses rulesets to automate tasks

Age of the Algorithm
Machines "learn" from patterns they recognize and adjust their behavior accordingly

Computer adapts its activity using data, rather than being programmed to do so by:

- Using previously labelled data to predict future events, known as “supervised machine learning” algorithms, or
- Using unlabelled data when the machine calculates its own connections, known as “unsupervised machine learning” algorithms
Artificial Neural Networks (ANN)

- Learning models based on biological neural networks present in the brains of animals
- Solves tasks too difficult for traditional methods of programming

Convolutional Neural Networks (CNN)

- Consists of 1 or more layers of “convolution” units
- Receives input from multiple units to create a complex network

Finds patterns in images, audio, video: brings structure to unstructured data
Natural language processing (NLP)

• Ability of computers to understand or process natural human languages and derive meaning from them
• May involve machine interpretation of text or speech recognition

Visual processing

Machine’s ability to view and comprehend visual images
• Object identification
• Obtaining information from abstract pictures
Ro/Chat/Co bots

- Manufacturing
- Hazardous environments
- Campus deliveries
- Warehouses
- Home & health
- Agriculture
- Customer service
FLEXIBLE PROCESSING PIPELINE

INPUT
- Text
- Speech
- Image
- Video

MACHINE LEARNING
- Prepare Data
- Train Model
- Apply Model
- Capture Feedback

OUTPUT
- Leverage Deeper Insights
- Achieve Greater Efficiencies
- Reduce Compliance Risk

INGESTION
- OCR, Image Recognition
- Video Processing

CLASSIFICATION
- AutoML-NL
- AutoML

ENTITY EXTRACTION
- NLP
- Semantic Extraction

VISUALIZATION
- Search
- Analyze
Use cases
Problem: Geoscientists spend too much time *searching* versus *using* information

Goal: Find relevant assets by location or by visual (or other) similarity

Benefit: Faster analysis, better decisions

**Input**
- Scan Oil & Gas Physical documents (Well logs, maps,…)
- Ingest Oil & Gas Digital Data
- Restore Oil & Gas Seismic Data from Tape (if needed)

**Process**
- Cloud AI/ML APIs
- Models and custom processors
- Enrich with customer metadata data sources

**Output: Visual Search UI**
- Find assets by location
- Find assets by similarity
**Privacy**

**Job to Be Done:** Identify, classify & manage PD  
**Goal:** GDPR Compliance  
**Benefit:** Avoid Fines (2-4% of revenue or €10-20M)
“I need all the contracts for customer X”

1 Click vs. searching a number of repositories and not being sure you found them all
“Show me all of the contracts with non-standard limits of liability by customer and type.”
Data Ethics
State of play

“Most people want the convenience of the internet more than they want private spaces…”

*The Only Answer is Less Internet*, NYTimes

- Potential for unfair biases
  - Input data
  - Development teams
- Interference with human will

In the news…
- Google phone tracking: dragnet for police
- Amazon listening in on Alexa usage
- China’s “social credits” and “trust scores”
What’s it all mean for us?
Our evolution continues
There is still a need…
Be involved

- Determine if and where technology is deployed, in a pilot program or under investigation
- Become a partner of stakeholders (IT, LOB, Privacy, etc.)
- Provide input to machine learning process!
- Understand the provider, access rights, user community
- Update Records Retention Schedule and data maps
- Modify RIM/IG policies and procedures, as required
- Leverage for ROT clean-up

Understand & embrace the technology!
Stay up-to-date
Thank You!

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