

# ***AI opportunities for Land Registry***

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# Trentino Digitale S.p.A.

- ***In-house providing company*** of the Autonomous Province of Trento (PAT) and of all the local Public Administrations (PA)
- 166 Municipalities
- **174 Public Shareholders**
- 300 employees
- Owner and manager of provincial **optical fiber network**
- Owner and manager of provincial **radio networks** (including the emergency one)
- Owner and manager of two **Data Centers**
- Manager of **software & platforms of the PA**
- Operational manager of the PAT's **CSIRT** (*Computer Security Incident Response Team*)
- **Service Provider for the Public Entities** mainly (networks, data centers, cloud, applications, cybersecurity, ..)
- Involved in the Ultra BroadBand initiatives

# A “New World”

- Dependence on **digital services** and their **availability**
- Disruptive **Artificial Intelligence**
- **Public Administrations:** largest data holders & service provider
- **ICT in-house company:** responsibility to innovate, develop, manage, and deliver ICT infrastructures, solutions and services
- Too small to face **big issues** alone
- “New” **geopolitical challenges**
- Constantly evolving **Cyber threats**
- Regulation and **compliance**
- **Data ownership & sovereignty**
- **Digital sustainability**

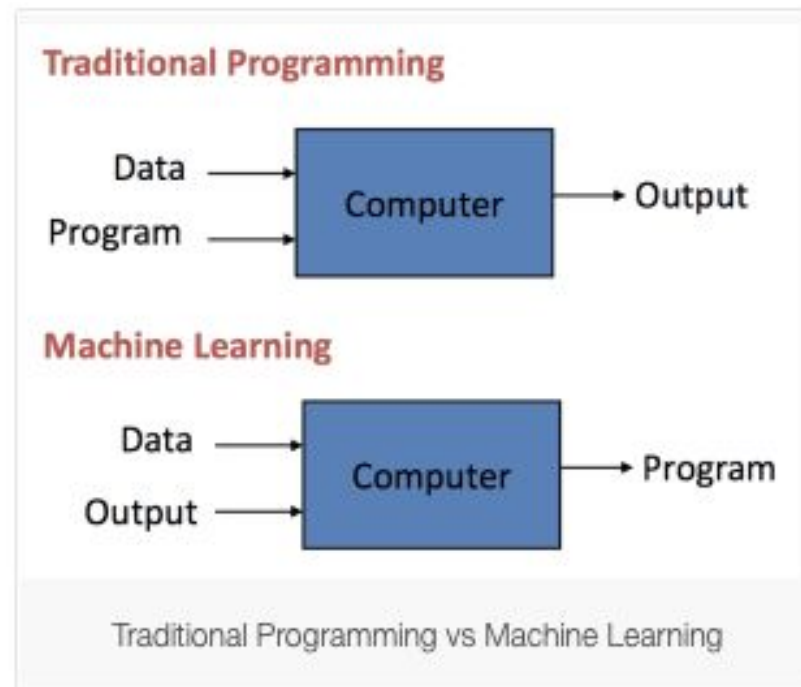


# Basic Elements

- Data
  - Computing power
  - Algorithms
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- Individual Productivity
  - Processes and Automation
  - Virtual Assistant
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- Use Cases
  - Strategy & Governance
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- Awareness
  - Competencies

# Ongoing Activities exploiting AI

- **Virtual assistant & Chatbot** for final users (citizens / enterprises)
  - For different digital services: replacement of Help Desk operators; management of peak in support requests
- **Processes automation**
  - Classification of incoming documents and related registration & documents sorting;
  - Creation of draft formal documents, also in response to formal requests
- **Software analysis and evolution**
  - Analysis of existing, technologically obsolete, software and related updating
- **Dedicated digital infrastructure for AI**
- **New skills & new work organisation**

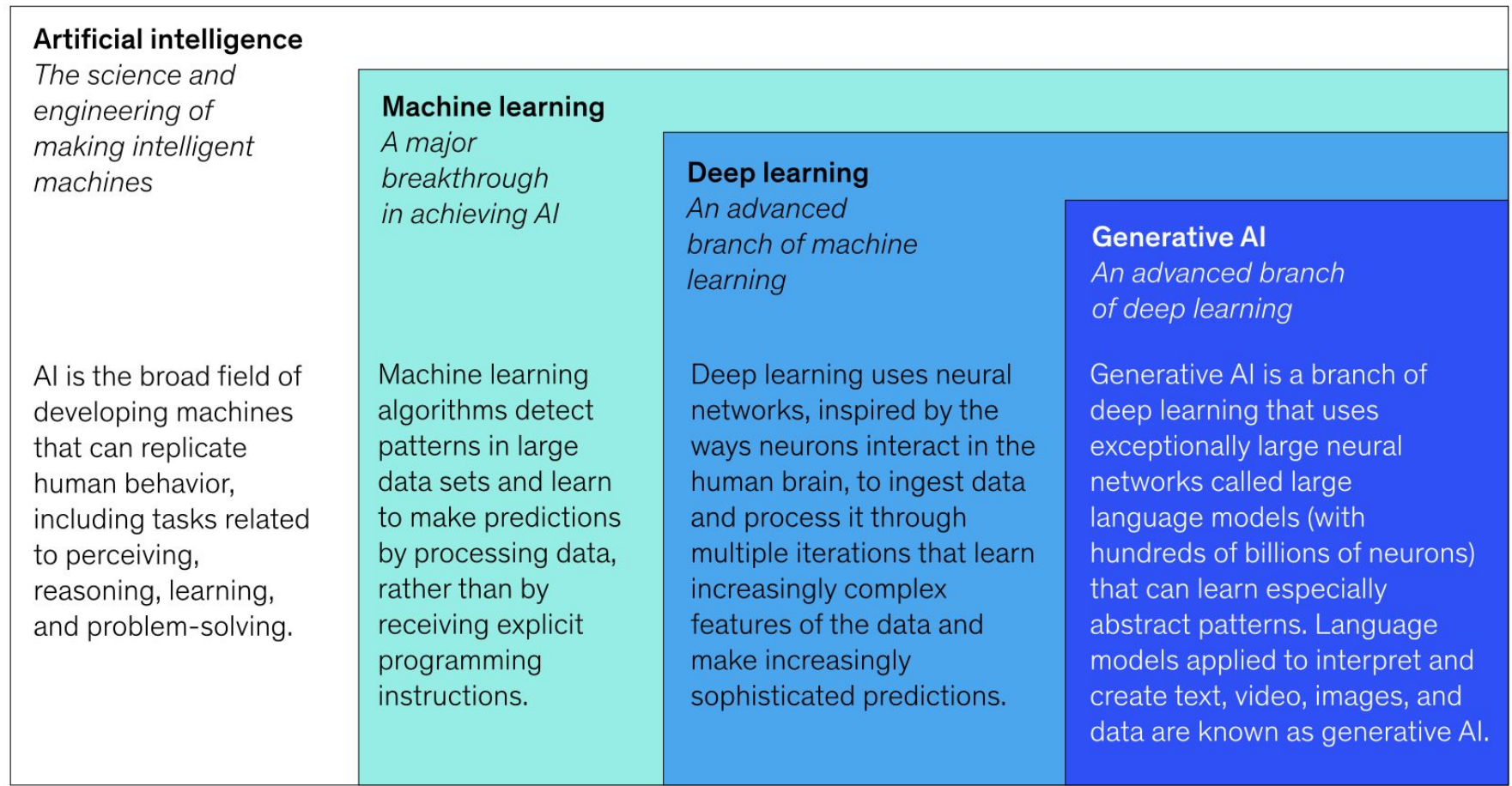


*Basic Concepts in Machine Learning, Jason Brownlee, August 2020*



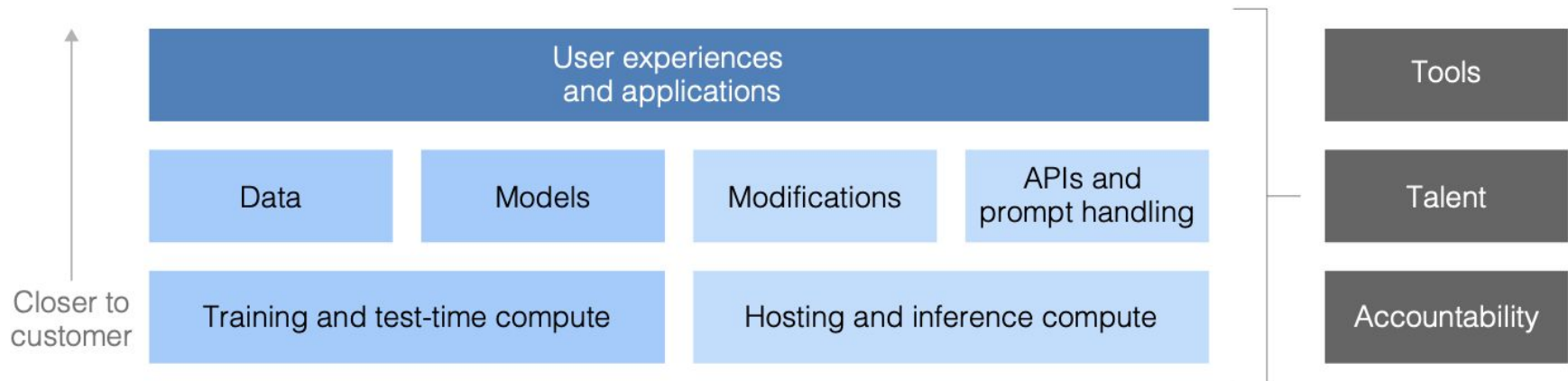
# Artificial intelligence is a machine's ability to perform some cognitive functions we usually associate with human minds.

## The evolution of artificial intelligence



## Illustrative AI tech stack

■ Experience ■ Development ■ Deployment ■ Enabling ecosystem



Source: *Public AI: Making AI work for everyone, by everyone*, Mozilla, Sept 30, 2024



# Introduction to the Trentino System

- **Libro Fondiario** (Land Register) is a **property registration system** in use in the Autonomous Province of Trento and other areas
- **Unlike the transcription-based system** used elsewhere in Italy:
  - The **sistema tavolare is a real-property-based system**
  - Ensures the acquisition of real rights (such as ownership or usufruct) only through their registration
  - **Has constitutive effects with high degree of legal certainty** and protection for property rights.
- **The structured, property-based nature** of the libro fondiario and its integration with the cadastre provide an **ideal foundation for AI applications.**
- Data is consistently organized around unique property units, enabling accurate cross-referencing, anomaly detection, and automated reasoning.

# AI Opportunities & Reference Use Cases

- **The formalism, legal precision, and completeness of records, especially when digitized, allow machine learning models to operate on a clean, well-defined dataset,** reducing ambiguity and enhancing the reliability of predictive and validation tools.
- **Reference Use Cases**
  - **Greece – Hellenic Cadastre:** Saves processing time for legal review of contracts, Cost per assessment dropped, Automated contract classification and legal rules checking; chatbot assists citizens
  - **The Netherlands – Kadaster “Cadastral Map Next”:** Uses AI + OCR to reconstruct maps from archival field sketches; Automates boundary detection; human-in-the-loop review ensures accuracy.
  - **Academic pilots & research**

# Possible Use Cases in Trentino

- **Automated Validation for New Practice**
  - AI parses incoming packages (notarization, cadastral/registry docs) checking alignment with legal schema and consistency across systems
- **Historical Archive Digitization & Quality Assurance**
  - Employ computer vision & OCR (Optical Character Recognition) on scanned maps and deeds to auto-populate database fields and flag discrepancies and check for redundancy and consistency
- **Real-Time Monitoring, Fraud & Discrepancy Alerts**
  - AI model using UAV (Unmanned Aerial Vehicle) and CNNs (Convolutional Neural Networks) that compares sale prices with cadastral data to detect anomalies
- **AI-Powered Chat Assistant**
  - Citizen-facing bot that answers inquiries on titles, taxes, processes, reducing front-office traffic and emails.



# Challenges

- Many **historical records exist only in paper form** or are incomplete, requiring digitization and normalization before they can be used for AI training and validation.
- AI models need high-quality, structured, and consistently maintained datasets, which may be **challenging to obtain across different time periods and formats**.
- The system processes sensitive personal and property data, making **strict GDPR compliance essential** (e.g., data minimization, purpose limitation, transparency).
- Automated tools must ensure **human oversight for decisions with legal effects** (e.g., proposed updates or anomaly flags).
- **Logging, access control, and auditability are critical** when deploying AI in sensitive land registry and cadastral workflows.

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