

Welcome to Virtual Coffee: AI and Big Data: Rewards, Risks, and RIM Implications



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Items to Note

- If you would like to participate, use the side panel controls to ask a question. Zasio will respond after the webinar via email.
- We will email attendees a copy of this recording along with responses to additional questions/comments. If you don't want to receive any follow up in regard to this session, please send me a note in the chat box and I will consider that your "opt out".
- Thank you for the questions you all submitted in advance!



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Esteemed Guest & Discussion Leaders



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ECM[®]
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Sr. Analyst / Licensed
Attorney

What's all the hype about?

- Crawlers
 - Search & classification
- IOT
 - Smart automation
- Self-Driving Vehicles
- Chat GPT, Bing, Etc.!
 - Chat GPT: Over 100 million users, 1.6 billion visits in June
 - Human like interaction



Roadmap

- Introduction
- What is AI?
- AI Components & Big Data
- AI & Big Data in Practice – Health Sciences Example
- Ethical and Regulatory Considerations
- Implications for RIM

Guest Presenter – Anita Paul

40 years+ in Information Management when I retired in 2021.

- Early 80s: Degree in Library Sciences in Frankfurt Germany
 - Worked as a librarian at University library in Kassel for 5 years
- Signed up for master program in Information Science and Technology at Univ of Constance, Germany
 - First contacts with AI – Master thesis on semantic networks fro expert systems
 - Stay at Research Department of OCLC, Online Computer library Network and Chemical abstract Service in Columbus, OH
 - Expert system for cataloging
- Returned to Frankfurt, Germany to run a project on Open Systems Interconnection
 - ISO Search&Retrieve and EDIFACT protocols – connecting Research networks, libraries and booksellers

Moving on to RIM

- Joined Roche in 1991 as “Head of Regulatory Archives”
 - Over the years held various IT, clinical, regulatory, quality, and legal roles
- In 2009 started the company-wide records management program
 - Senior management function (reporting CEC via General Counsel)
 - Co-Initiator of Roche’s Information Governance Council
 - Records Management
 - Data Science (Research, Development, Marketing, ..)
 - IT Data Warehousing
 - Data Privacy
 - IT Security
 - Business Quality & Data Integrity
- Lead/participated in industry groups:
 - European Pharma Records Management Group, Pharmaceutical Records and Information Organization, Health Sciences Records and Archives Assoc., European Conference for Document Management (Drug Information Association)

What is Artificial Intelligence

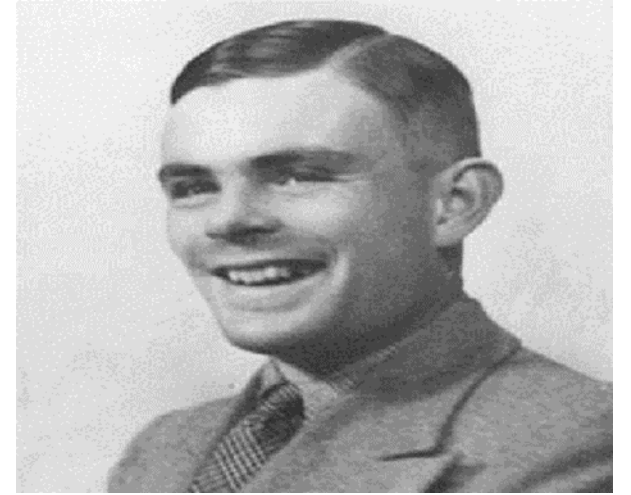
AI Definitions

- First defined by Stanford Professor John McCarthy in 1955 as “**the science and engineering of making intelligent machines**”

More recently

- “the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings..” - Britannica.com
- “Artificial intelligence leverages computers and machines to mimic the problem-solving and decision-making capabilities of the human mind.” - IBM.COM
- “the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages” - Definition „OXFORD LANGUAGES“

How to identify an AI system?



Turing-Test

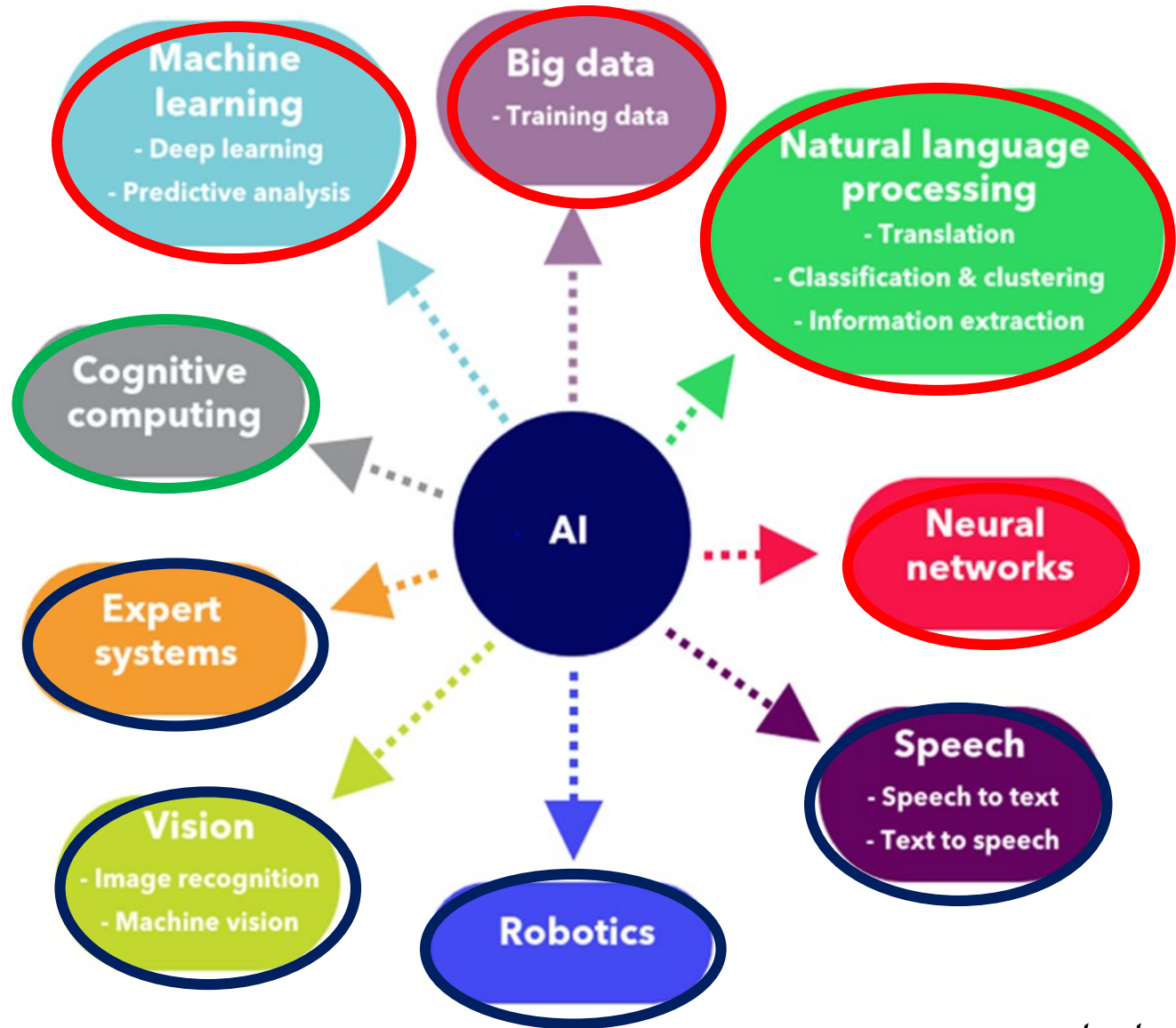
- Named after Alan Turing, UK
 - Defined in 1950 – see movie „The Imitation Game“
- Objective: Identify whether a person or a machine is answering
 - Set-up keeps interrogator and answering „subject“ in separated areas
- **Only recently first systems to pass test:**
 - LaMDA (Google) and ChatGPT were among the first ones

Areas of AI

Foundation element

Special area

Application area



Key Components of AI

1. Knowledge Acquisition

- via (Big) Data
- Images, unstructured and structured data, ...

2. Programming/Algorithms

3. Machine Learning - Deep Learning (Neural Networks)

Not necessarily in this sequence

1 - Knowledge Acquisition

Data pools (images, text, structured data, health data, fitness data, CCTV, ...)



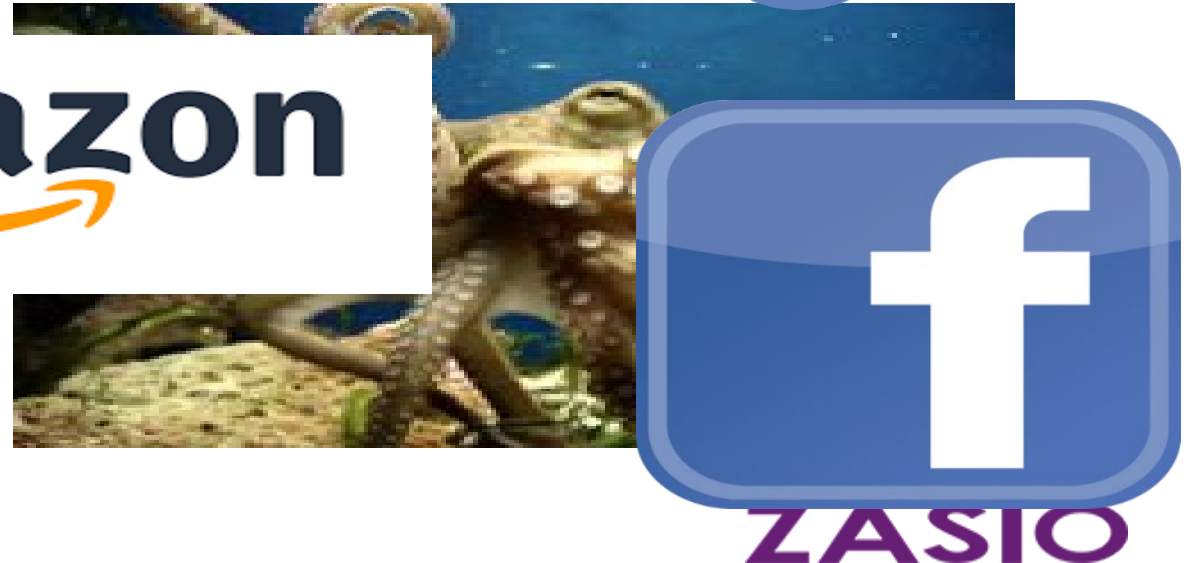
Big Data in public understanding

- We pay with our data - data is our currency for goods and services on the Internet
- Tech companies are black holes or hungry animals absorbing our data



amazon

Google



But what exactly is Big Data?

- Ever increasing amount of larger and more complex pools of data and the exploration and combination of new data sources
 - 3Vs (Variety, Volume, Velocity)
- Big data is the nurturing element (“food”) of AI applications
 - Training of systems based on new and increasing data to enhance insights
- *The more, better, up-to-date and specific (but also more diverse) the data, the better the results*
- *Understanding and selection of initial training data is key – otherwise a GIGO-effect may also occur in AI applications*

2 - Algorithms

- Coded instructions generated by programmers
 - Structures/libraries
 - However, objective of AI-algorithms is the self-optimization of the system (machine learning/deep learning)
- In principle, many languages can be used for AI applications, especially in API programming
 - For core algorithms “Python” is language of choice
 - In data science “R” is frequently used

3 - Machine Learning and Deep Learning

Machine Learning

- The usage of algorithms to analyze and learn from an increasing amount of data and for better decision taking over time
- Example: cat or dog? Features need to be inserted to identify animal

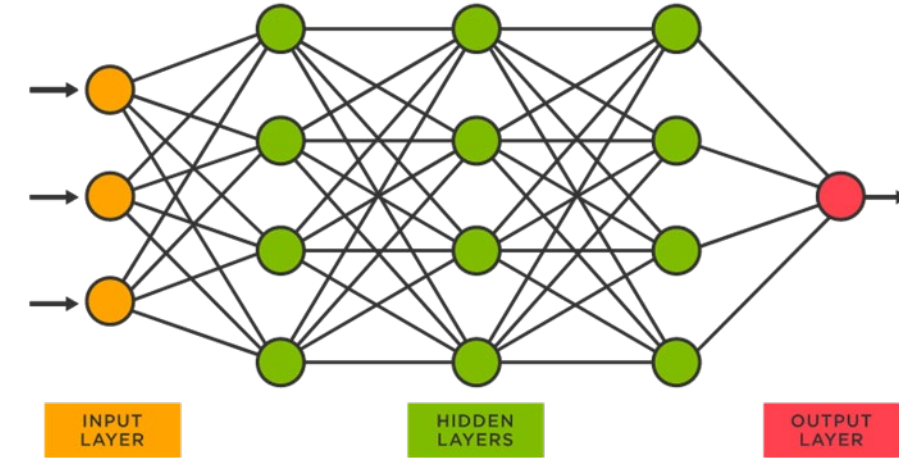


Deep Learning

- A special category of machine learning
- Use of multi-layered, more powerful algorithms to construct **neural networks**
- Iterative test loop programming to adapt the underlying models. Adaption of underlying model to enhance pattern and outlier recognition
- “Self-improving models” – program attributes features itself to identify the animal



Neural Networks



- Algorithms imitate the human brain cell processes
- Data is only visible at the input and output layer (input- and output-neurons) . The hidden layers act as a black box
- Deep Learning uses highly complex, nested structures in the hidden layer
 - Every neuron is assigned an initial weight. When inserting data, every neuron assigns its weight (perceptrons) to the inserted data.
 - The result of the calculation is handed via channels over to the neurons of the next sub-layer or layer
 - Adjustment of values through forward and backward propagation („Learning“)
 - The calculation of the final result is done in the output layer – highest calculated value.

AI Applications used in Business – Examples from Health Care

AI in Health Care

Examples:

- Diagnostics/image analysis (e.g. Breast cancer screening)
- Treatment decision taking (e.g. tumor board decision software suggesting treatment options based on individual patient results/analysis of big data medical papers/study results)
- AI-assisted robotic surgery
- Virtual nursing assistance (“social robots”)
- Electronic health records management, e.g. voice to text transcription, ...

AI in Clinical Development

- Study design
 - Selection of primary and secondary endpoints
 - Cohort identification
 - Protocol tailoring to specific country/sites
- Site identification and patient recruitment
 - Identification of sites with highest recruitment potential, especially for rare diseases
- Monitoring
 - Risk profiling and monitoring of individual study sites to allow proactive intervention
- Drug Safety Monitoring
 - Signal detection – new insights
 - Safety case reporting
- Health Authorities accepting Real World Data/Real World Evidence instead of full scale new clinical trials

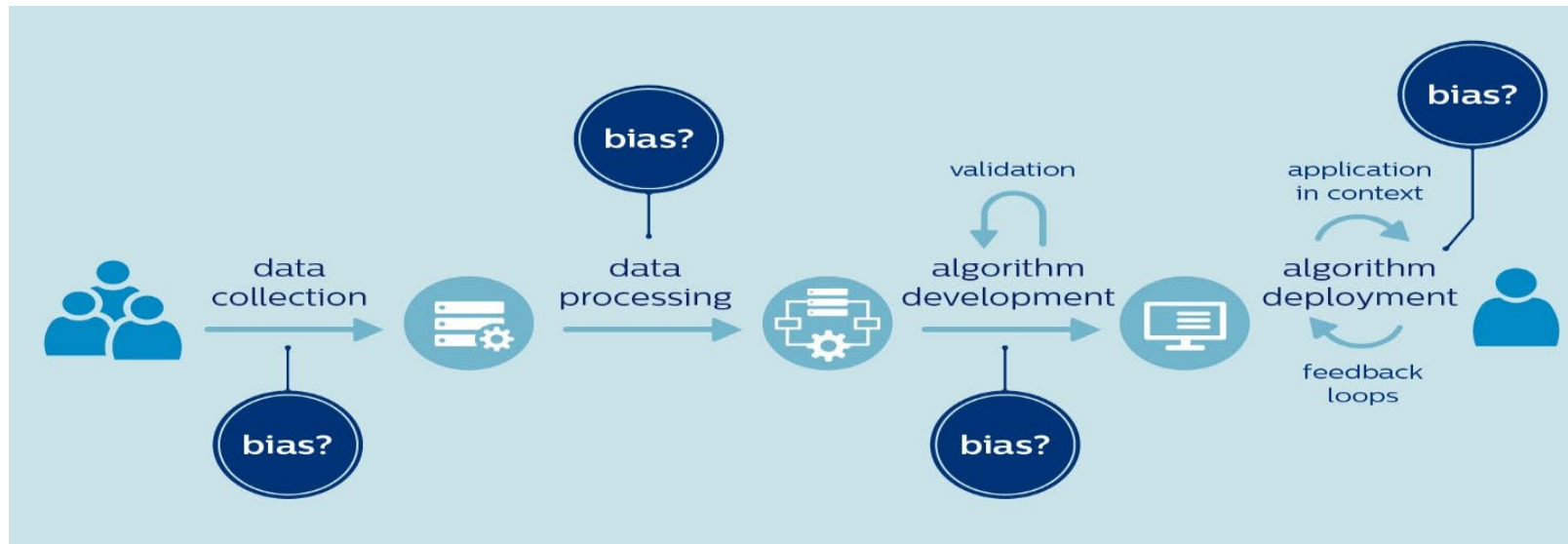
Ethical and Regulatory Impact

Bias

Problem: How to avoid bias?

- Bias occurs in data selection and programming
- View of society determines available data
 - *Existing data reflects history and present and not necessarily where we want to be*
- View of programmer determines algorithms

Can we avoid bias?



Bias in Data

- Search for images:
“CEO”



Reclaim Leadership in AI ...
time.com



224,022 Ceo Stock Photos, Pictures ...
istockphoto.com



Chief Executive Officer (CEO) Job ...
thebalancecareers.com



Klaus Roewe, industry vet...
lilium.com



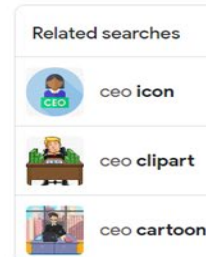
Hugo Boss-News: Wie der neue CEO den...
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baycollege.edu



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richmondcc.edu



Set out-of-office assistant without ...
firstattribute.com



Qualities of a Medical Office Assistant ...
dorsey.edu



Office Assistant Job Description ...
theinterviewguys.com

Example: Amazon AI in Application Screening

- Project started in 2014 to assist HR dept
- Objective: Filter potential candidates based on selected criteria
- Project stopped in 2018 because female candidates were sorted out
- AI drew decisions based on former hiring dossiers
 - As the company had hired more men in the past, the attribute “ male” received a higher weight (see neural networks)

Bias in Health Data

- Most of the medical data results from caucasian males
- In consequence:
 - Skin cancer in African Americans was not sufficiently detected by ai-supported imaging diagnostics
 - False results: Non-caucasians are healthier, as they generate less costs within the health system. Algorithm inappropriately used health costs as a proxy for health needs

<https://www.hsph.harvard.edu> › [ecpe](#) › [how-to-prevent-...](#) ⋮

Algorithmic Bias in Health Care Exacerbates Social Inequities

12 Mar 2021 — **Artificial intelligence (AI)** has the potential to drastically improve ... certain fields such as race or gender from the data, for **example**.

Big Data and Data Protection



Different paradigms

- Big data/AI: the more – the better (maximization)
- Data protection: the less – the better (minimization)

EU GDPR does not prohibit the collection of personal data as long as there is

- a legitimate use
- consent
- deletion after end of legitimate use
 - Further use for scientific purposes is permitted (anonymized form)

Attempts to regulate AI - EU

Liability regulations (already in place)

- AI for medical devices (e.g. tumor detection software)
- 4 classes for self-driving cars (national level Germany)

New AI act under review – release expected 2026

- defines risk categories
 - Unacceptable:
 - Cognitive behavioural manipulation (e.g. certain toys triggering dangerous behaviour with kids)
 - Social scoring
 - Biometric identification systems (real-time/remote)
 - High risk:
 - AI in systems falling under safety regulations
 - AI systems falling into 8 areas where a registration will be necessary
 - (Management of critical infrastructure, law enforcement, ...)
 - Generative AI:
 - E.g. ChatGPT will have to comply with certain transparency requirements
 - Limited risk AI
- proposes enforcement measures and governance structure at European and national level.

Attempts to regulate AI – North America

- Canada: Artificial Intelligence and Data Act (AIDA)
 - Focus on “high impact” AI systems
- U.S. – Aspirational/Self-Regulation
 - Driven by regulatory and consumer enforcement & litigation, private sector
 - U.S. EEOC v. iTutor Group
 - 7 major AI technology companies recently agreed to voluntary commitment pact
 - Federal: Blueprint for AI Bill of Rights
 - 5 Pillars: Safe & effective systems, Algorithmic discrimination protections, Data privacy, Notice and explanation, Human alternatives, considerations, and fallback
 - States (approximately 2 dozen states have enacted or proposed legislation)
 - Municipalities: NYC Law 144: AI Bias in Hiring

Regulating AI - China

- AI Policy Initiatives
 - Made in China 2025 (2015)
 - Action Promoting the Development of Big Data (2015)
 - Next Generation Artificial Intelligence Development (2017)
- AI regulations – Top-Down Approach
 - Data Security Law
 - Personal Information Protection Law (PIPL)
 - Administrative Provisions on Recommendation Algorithms in Internet-based Information Services
 - Draft “Measures for Generative Artificial Intelligence Services”, April, 2023
 - Designed to lay out ground rules for generative AI products and content (including ChatGPT)

AI – Considerations for RIM-Professionals

AI Benefits to RIM Professionals

- Autoclassification
- ROTT detection
- Metadata assignment
- Chatbots for RIM help systems/training
- Legal hold assignments
- Format obsolescence alerts
- ...

AI – What to store as a Record?

- “Deletion plans” as part of GDPR compliance required by various countries, especially for big data collections
 - Anonymized data = accepted as deletion in the spirit of GDPR
 - Pseudonymized is not
- What about underlying Big Data pools used for conclusions, e.g. clinical trials?
 - Standards for formats need to be defined
- How to archive and preserve algorithms?
 - EU regulation proposes 10 years for underlying technical and transparency documentation for algorithms
 - Rolling certification process for self-improving systems may be on the horizon

AI – RIM Considerations

- Reliability of Information
 - NY Chat GPT Brief
- Proprietary
 - Major Cell Phone Manufacturer Source Code Leak
- Privacy & Confidential Information
 - Google translate
- Copyright
 - Sarah Silverman – Summaries & Derivative works
- Biases
 - Requires human review to align with values

Staying One Step Ahead

- Stay Informed
- Know your information, records, locations
- Involve Stakeholders
- Develop Policies/Procedures/Guidance
 - Organization's position
 - Safely Assessing and Incorporating AI Tech
- Change Management
- Training

Tipsy-Robot Bar



About Zasio

- Zasio provides agile, innovative RIM software solutions along with consulting services to help businesses of all sizes build and maintain a successful Information Governance programs.
- Since we started in the industry, we've recruited a team of experts, including software developers and technicians, attorneys, analysts, Certified Records Managers (CRMs), Information Governance Professionals (IGPs), Certified Information Privacy Professionals (CIPPs), and Certified Information Security Managers (CISMs)—all in-house—who not only keep up with evolving IG trends, but who can also scale Versatile solutions to meet the demands of both customers new to records management and seasoned veterans.
- Our team is founder-led by the same person who created our company over 34 years ago,

Kevin Zasio
To learn more about our software and services, visit us at www.zasio.com or contact our Sales Team at sales@zasio.com, 1-800-513-1000, option 1.

Next Session

Details Soon

Date: October

Time: TBD

Topic: Privacy Year in Review

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