The Importance of Ethics in Data Governance

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Peter Aiken, Ph.D.

- I've been doing this a long time
- My work is recognized as useful
- Associate Professor of IS (vcu.edu)
- Institute for Defense Analyses (ida.org)
- DAMA International (dama.org)
- MIT CDO Society (iscdo.org)
- Anything Awesome (anythingawesome.com)
- Experienced w/ 500+ data management practices worldwide
- 13 books and dozens of articles
- Multi-year immersions
  - US DoD (DISA/Army/Marines/DLA)
  - Nokia
  - Deutsche Bank
  - Wells Fargo
  - Walmart
  - HUD …

$1,500,000,000.00 USD

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Program Overview

- Principles - Ethical Lenses

The Importance of Ethics in Data Governance

- Data Governance-Specific Focus
- Frameworks for Ethical Data Decision Making

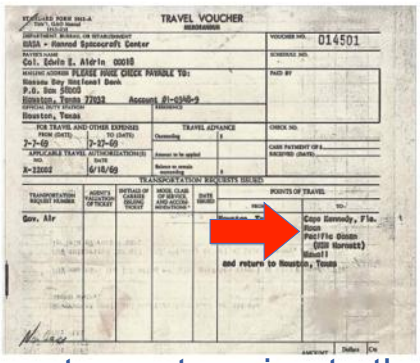
- The Right Path - The Roadmap for Data Ethics
- Examples

- In Summation/Q& A

Ethics

- Ethics refers to standards and practices that tell us how human beings ought to act in the many situations in which they find themselves—as friends, parents, children, citizens, businesspeople, professionals, and so on.
- Ethics is also concerned with our character.
- It requires knowledge, skills, and habits.

Buzz Aldrin's Travel Voucher


TRAVEL VOUCHER

014501

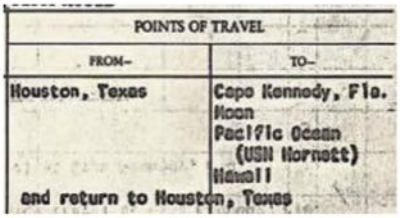
Col. Edwin E. Aldrin 00010

PLEASE MAKE CHECK PAYABLE TO:

Houston, Texas

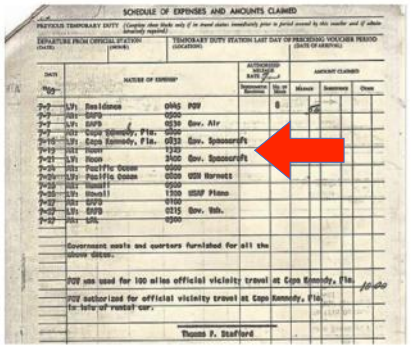
Gov. Air

Cape Kennedy, Fla.
Noon
Pacific Ocean
(USN Hornett)
Hawaii
and return to Houston, Texas


POINTS OF TRAVEL

FROM—	TO—
Houston, Texas	Cape Kennedy, Fla. Noon Pacific Ocean (USN Hornett) Hawaii
and return to Houston, Texas	

Even astronauts going to the moon follow the rules.

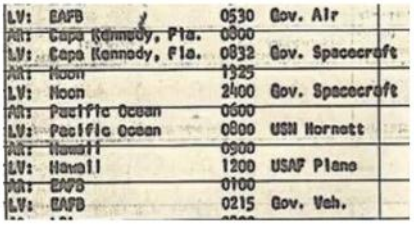

SCHEDULE OF EXPENSES AND AMOUNTS CLAIMED

Government meals and quarters furnished for all the above dates.

POV was used for 100 miles official vicinity travel at Cape Kennedy, Fla.

POV authorized for official vicinity travel at Cape Kennedy, Fla. in lieu of rental car.

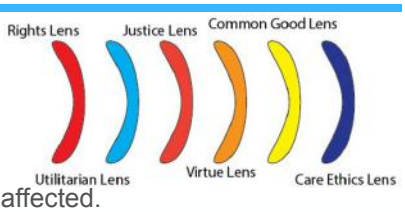
Thomas P. Stafford


LV:	EAFB	0530	Gov. Air
AR:	Cape Kennedy, Fla.	0800	
LV:	Cape Kennedy, Fla.	0832	Gov. Spacecraft
AR:	Noon	1325	
LV:	Noon	2400	Gov. Spacecraft
AR:	Pacific Ocean	0600	
LV:	Pacific Ocean	0800	USN Hornett
AR:	Hawaii	0900	
LV:	Hawaii	1200	USAF Plane
AR:	EAFB	0100	
LV:	EAFB	0215	Gov. Veh.

...in Government spacecraft follow the travel rules.

"Government meals and quarters furnished for all the above dates"

Six Ethical Lenses

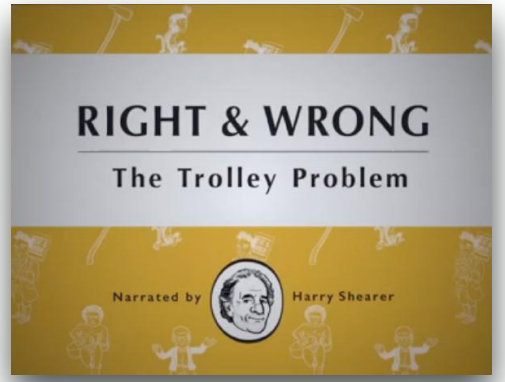


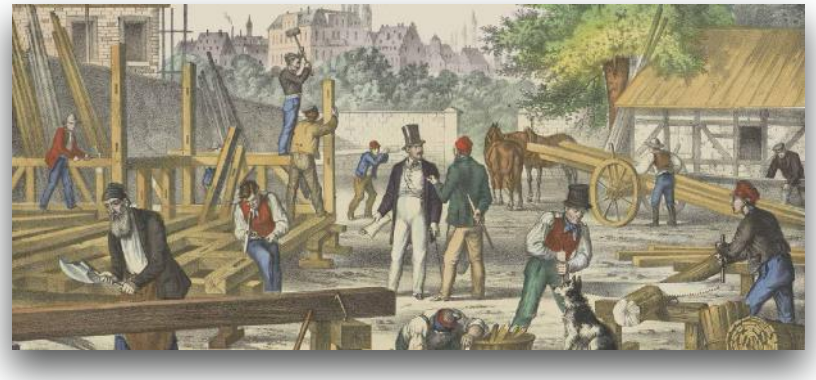
- The Rights Lens
  - The one that best protects and respects the moral rights of those affected.
    https://www.scu.edu/ethics/ethics-resources/ethical-decision-making/rights/
- The Utilitarian Lens
  - Some ethicists begin by asking, "How will this action impact everyone affected?"—emphasizing the consequences of our actions.
    https://www.scu.edu/ethics/ethics-resources/ethical-decision-making/calculating-consequences-the-utilitarian-approach/
- The Justice Lens
  - Justice is the idea that each person should be given their due, and what people are due is often interpreted as fair or equal treatment.
    https://www.scu.edu/ethics/ethics-resources/ethical-decision-making/justice-and-fairness/
- The Virtue Lens
  - A very ancient approach to ethics argues that ethical actions ought to be consistent with certain ideal virtues that provide for the full development of our humanity.
    https://www.scu.edu/ethics/ethics-resources/ethical-decision-making/ethics-and-virtue/
- The Common Good Lens
  - According to the common good approach, life in community is a good in itself and our actions should contribute to that life. https://www.scu.edu/ethics/ethics-resources/ethical-decision-making/the-common-good/
- The Care Ethics Lens
  - Care ethics is rooted in relationships and in the need to listen and respond to individuals in their specific circumstances, rather than merely following rules or calculating utility.
    https://www.scu.edu/ethics/ethics-resources/ethical-decision-making/care-ethics/care-ethics.html

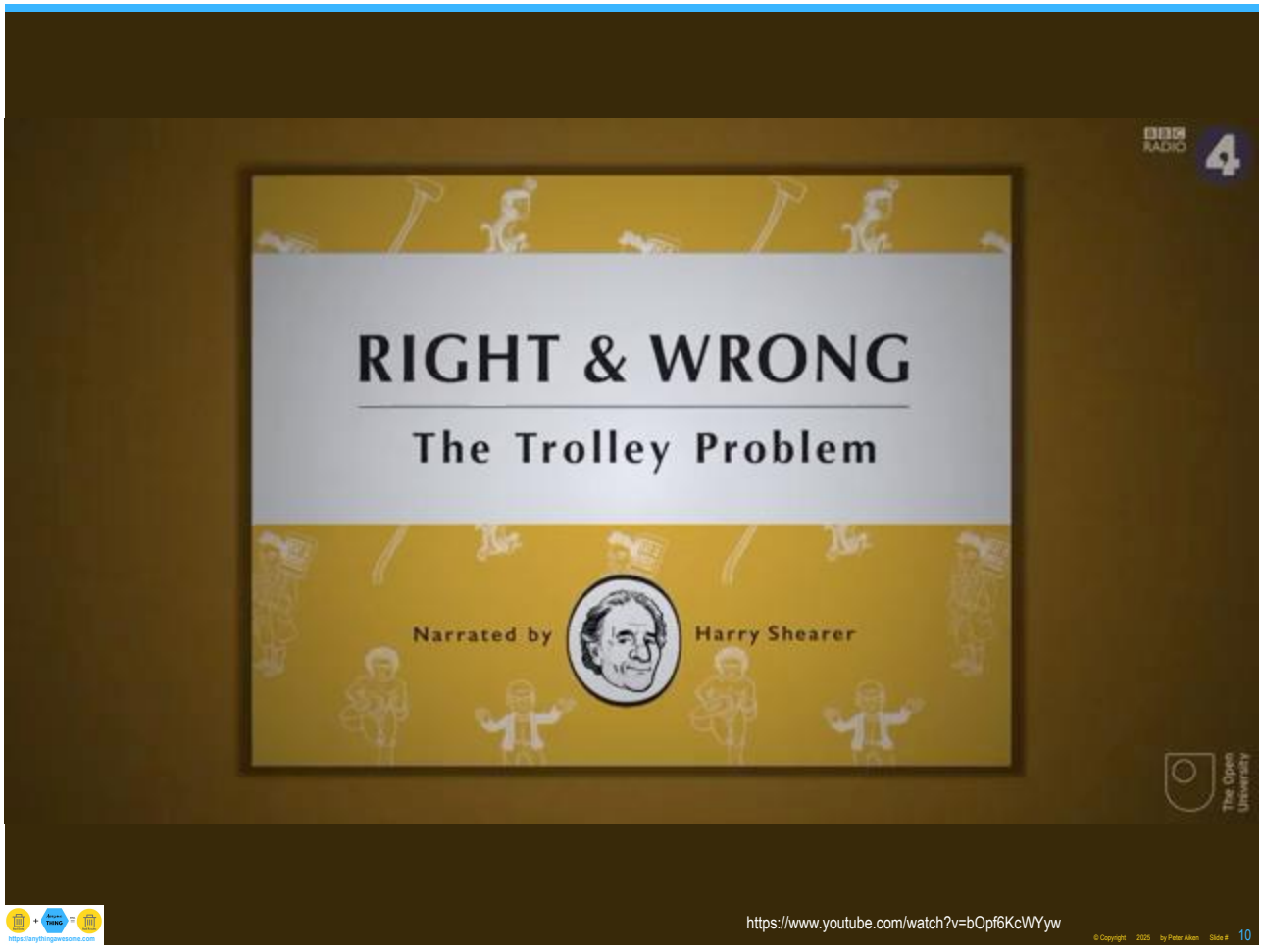
Adapted from: https://www.scu.edu/ethics/ethics-resources/a-framework-for-ethical-decision-making/

Understanding Ethical and Social Issues Related to Systems

- Five Moral Dimensions of the Information Age
  - Information rights and obligations
  - Property rights and obligations
  - Accountability and control
  - System quality
  - Quality of life







https://www.youtube.com/watch?v=bOpf6KcWYyw

Trolley Problem - A Two-Year Old's Solution

https://www.youtube.com/watch?v=JWb_svTrcOg

Trolley Problem - A Two-Year Old's Sister's Solution

https://www.youtube.com/watch?v=JWb_svTrcOg

Ethical Thinking

- No easy answers
  - Save five and sacrifice one?
  - Push the large individual off the bridge?
  - No correct answer
  - Best support is to provide a framework for these decisions
- Wouldn't it be nice?
  - Always save five
  - Always push the large individual off the bridge
- Frameworks do not exist for most organizations
- Data literacy is at such a low rate, these conversations are not considered
- They are generally not part of any academic programs
- Especially true for data science

What Ethics Is Not

- Ethics is not the same as feelings.
  - Feelings do provide important information for our ethical choices. However, while some people have highly developed habits that make them feel bad when they do something wrong, others feel good even though they are doing something wrong. And, often, our feelings will tell us that it is uncomfortable to do the right thing if it is difficult.
- Ethics is not the same as religion.
  - Many people are not religious but act ethically, and some religious people act unethically. Religious traditions can, however, develop and advocate for high ethical standards, such as the Golden Rule.
- Ethics is not the same thing as following the law.
  - A good system of law does incorporate many ethical standards, but law can deviate from what is ethical. Law can become ethically corrupt—a function of power alone and designed to serve the interests of narrow groups. Law may also have a difficult time designing or enforcing standards in some important areas and may be slow to address new problems.
- Ethics is not the same as following culturally accepted norms.
  - Cultures can include both ethical and unethical customs, expectations, and behaviors. While assessing norms, it is important to recognize how one's ethical views can be limited by one's own cultural perspective or background, alongside being culturally sensitive to others.
- Ethics is not science.
  - Social and natural science can provide important data to help us make better and more informed ethical choices. But science alone does not tell us what we ought to do. Some things may be scientifically or technologically possible and yet unethical to develop and deploy.

Our Principles (from Google)

- While we are optimistic about the potential of AI, we recognize that advanced technologies can raise important challenges that must be addressed clearly, thoughtfully, and affirmatively. These AI Principles describe our commitment to developing technology responsibly and work to establish specific application areas we will not pursue.
  1. Be socially beneficial.
  2. Avoid creating or reinforcing unfair bias.
  3. Be built and tested for safety.
  4. Be accountable to people.
  5. Incorporate privacy design principles.
  6. Uphold high standards of scientific excellence.
  7. Be made available for uses that accord with these principles.

Defining Data Ethics

IMPORTANCE OF DATA ETHICS IN COLLECTING, STORING, AND PREPARING DATA

- Principles of how organizations gather, protect, and use data
- A field of ethics that focuses on the moral obligations that entities have (or should have) when collecting and disseminating information about us
- Studies and evaluates moral problems related to data...and corresponding practices...in order to formulate and support morally good solutions
- Evaluates data practices with the potential to adversely impact people and society
- Moral obligations of gathering, protecting, and using personally identifiable information and how it affects individuals

Some Real-World Ethical Dilemmas

- Using information technology to reduce size of workforce
- Voice recognition software
- Monitoring workers activities on the computer
- Facebook sells subscriber information to advertisers
- …

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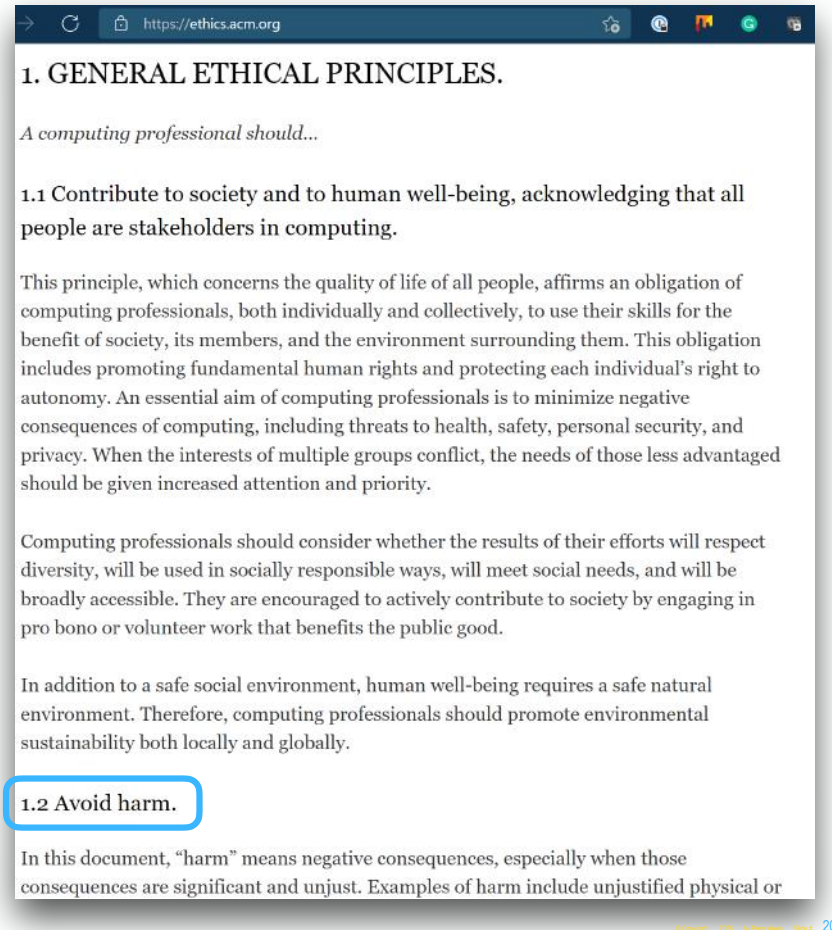
Professional Codes of Conduct

- Promulgated by associations of professionals
  - For example: AMA, ABA, AITP, ACM, DAMA
- Promises by professions to regulate themselves in the general interest of society
- Real-world ethical dilemmas
- One set of interests pitted against another
  - For example: right of company to maximize productivity of workers versus workers right to use Internet for short personal tasks

Example: ACM Code of Ethics



https://ethics.acm.org

2. PROFESSIONAL RESPONSIBILITIES.

A computing professional should...

2.1 Strive to achieve high quality in both the processes and products of professional work.

Computing professionals should insist on and support high quality work from themselves and from colleagues. The dignity of employers, employees, colleagues, clients, users, and anyone else affected either directly or indirectly by the work should be respected throughout the process. Computing professionals should respect the right of those involved to transparent communication about the project. Professionals should be cognizant of any serious negative consequences affecting any stakeholder that may result from poor quality work and should resist inducements to neglect this responsibility.

2.2 Maintain high standards of professional competence, conduct, and ethical practice.

https://ethics.acm.org

3. PROFESSIONAL LEADERSHIP PRINCIPLES.

Leadership may either be a formal designation or arise informally from influence over others. In this section, "leader" means any member of an organization or group who has influence, educational responsibilities, or managerial responsibilities. While these principles apply to all computing professionals, leaders bear a heightened responsibility to uphold and promote them, both within and through their organizations.

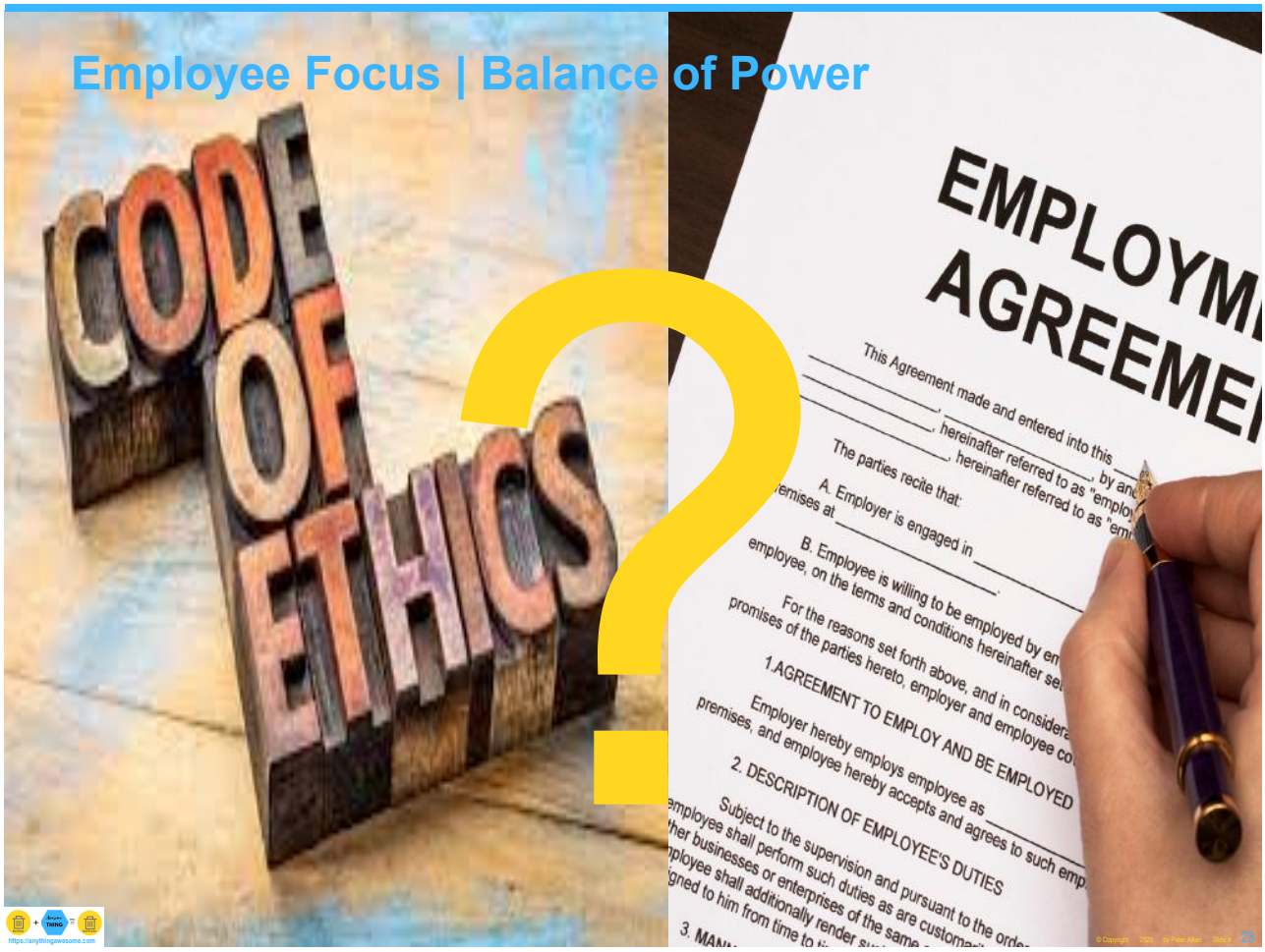
A computing professional, especially one acting as a leader, should...

3.1 Ensure that the public good is the central concern during all professional computing work.

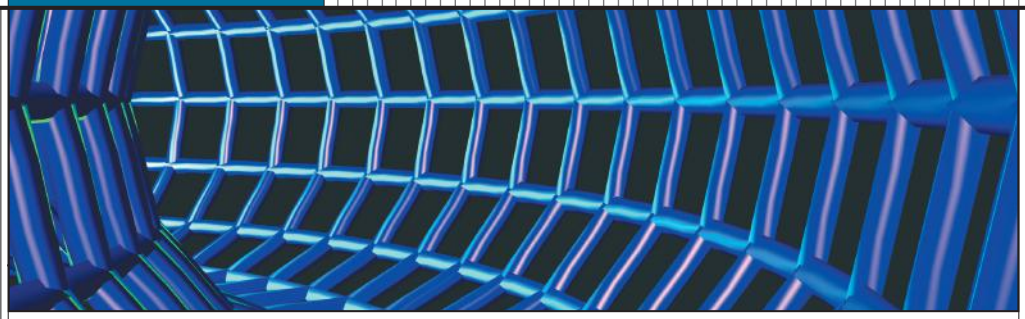
People—including users, customers, colleagues, and others affected directly or indirectly—should always be the central concern in computing. The public good should always be an explicit consideration when evaluating tasks associated with research, requirements analysis, design, implementation, testing, validation, deployment, maintenance, retirement, and disposal. Computing professionals should keep this focus no matter which methodologies or techniques they use in their practice.

3.2 Articulate, encourage acceptance of, and evaluate fulfillment of social responsibilities by members of the organization or group.

Employee Focus | Balance of Power



PERSPECTIVES

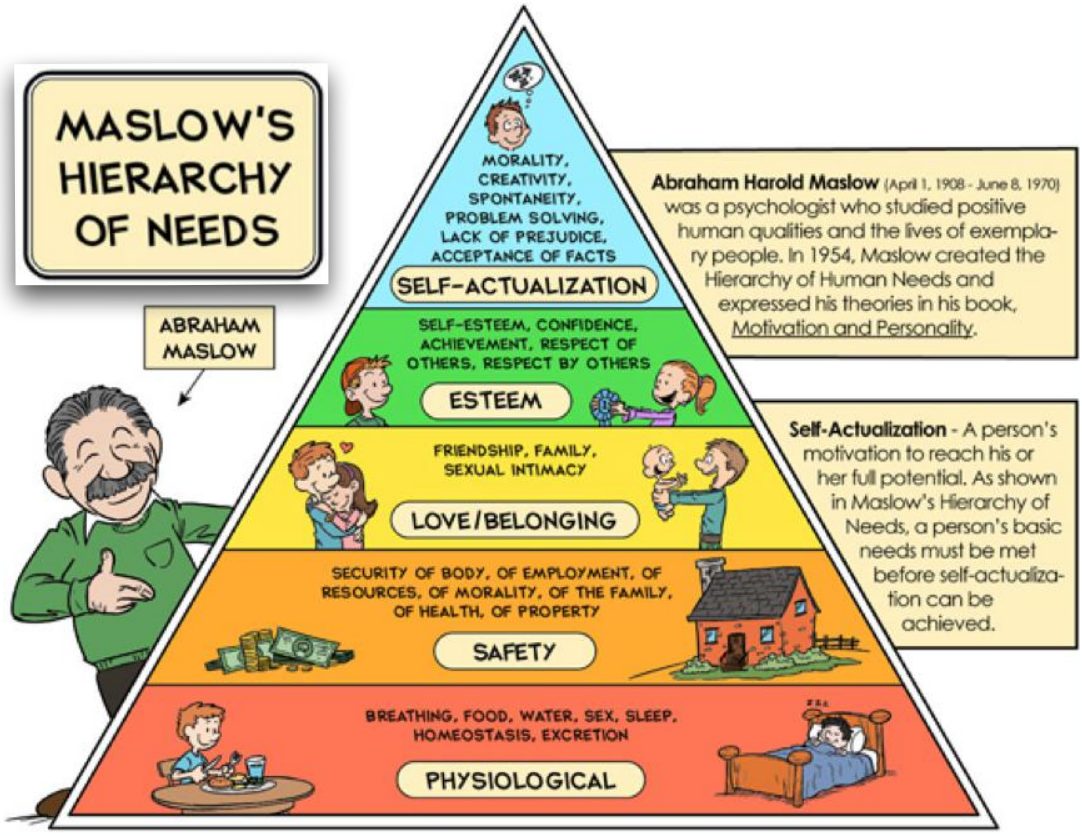


Using Codes of Conduct to Resolve Legal Disputes

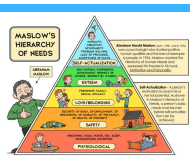
Peter Aiken, *Virginia Commonwealth University*
Robert M. Stanley and Juanita Billings, *Data Blueprint*
Luke Anderson, *Duane Morris LLC*

In the absence of other published standards of care, it is reasonable for contractual parties to rely on an applicable, widely available code of conduct to guide expectations.

Aiken, P. et al. "Use of the IEEE Codes of Conduct to Resolve Legal Disputes" *IEEE Computer* ISSN: 0018-9162 April 2010 43(4):29-34



Digital Civics Framework



L5–Professional/ Acumen

L4–Teacher/Acumen

L3–Knowledge Worker/Acumen (1 billion)

L2–Adult/Proficient (1.5 billion)

L1–Mobile/Literate (2.5 billion)

Digital Civics Framework

Everything here is required of data scientists and cyber professionals

L5–Professional/ Acumen

L4–Teacher/Acumen

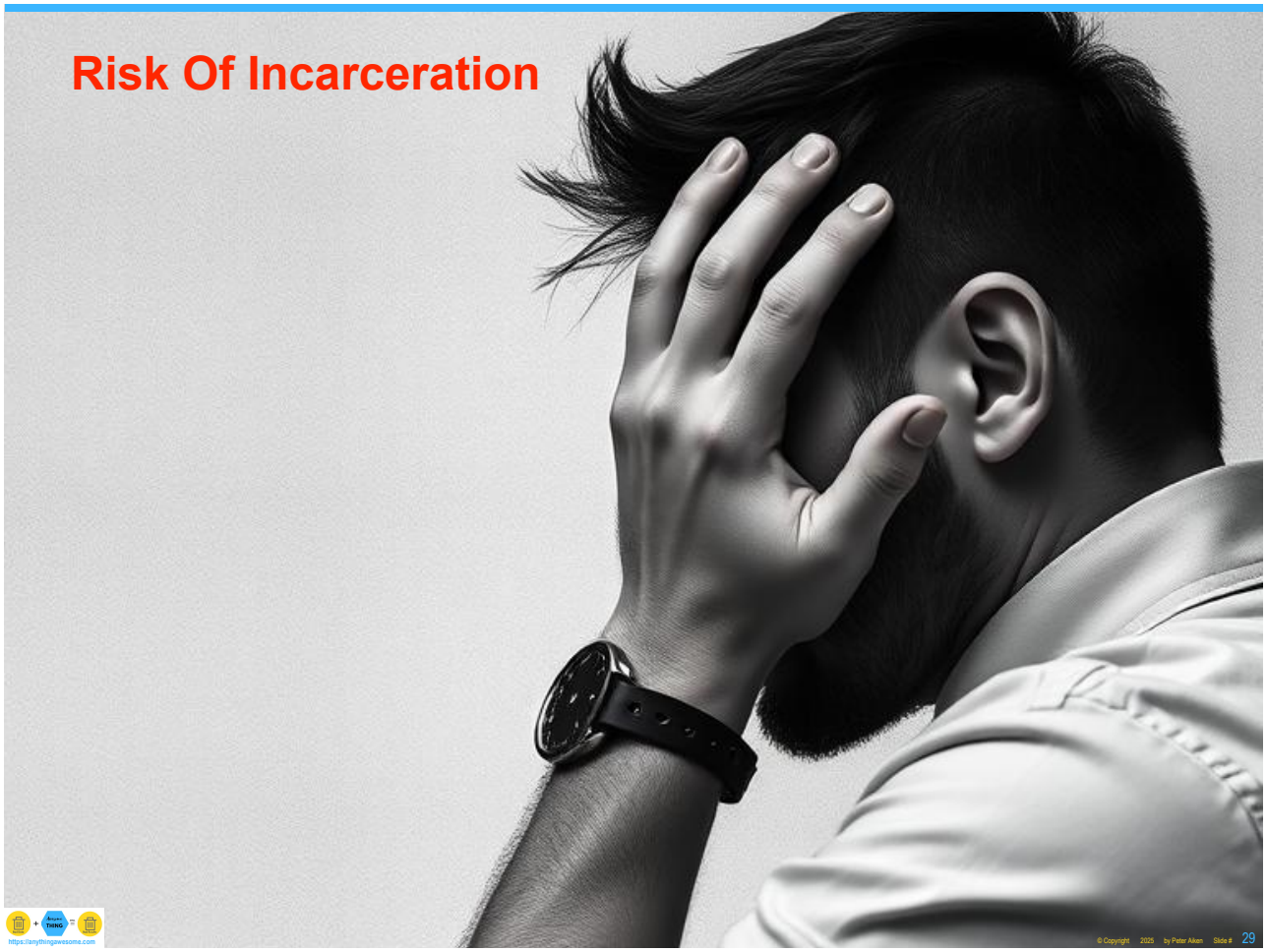
L3–Knowledge Worker/Acumen (1 billion)

L2–Adult/Proficient (1.5 billion)

L1–Mobile/Literate (2.5 billion)

ROI

Risk Of Incarceration



Office of the Comptroller of the Currency

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News Release 2020-132 | October 7, 2020

OCC Assesses $400 Million Civil Money Penalty Against Citibank

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WASHINGTON—The Office of the Comptroller of the Currency (OCC) today assessed a $400 million civil money penalty against Citibank, N.A. of Sioux Falls, South Dakota, related to deficiencies in enterprise-wide risk management, compliance risk management, data governance, and internal controls.

The OCC took these actions based on the bank's unsafe or unsound banking practices for its long-standing failure to establish effective risk management and data governance programs and internal controls. This failure also resulted in a violation of 12 CFR Part 30, Appendix D, "OCC Guidelines Establishing Heightened Standards for Certain Large Insured National Banks, Insured Federal Savings Associations, and Insured Federal Branches."

The agency also issued a cease and desist order requiring the bank to take broad and comprehensive corrective actions to improve risk management, data governance, and internal controls. The order requires the bank to seek the OCC's non-objection before making significant new acquisitions and reserves the OCC's authority to implement additional business restrictions or require changes in senior management and the bank's board should the bank not make timely, sufficient progress in complying with the order.

The Federal Reserve Board took a separate but related action against Citigroup, the bank's holding company.

The OCC penalty will be paid to the U.S. Treasury.

Media Contact

Bryan Hubbard
(202) 649-6870

https://www.occ.gov/news-issuances/news-releases/2020/nr-occ-2020-132.html

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The Importance of Ethics in Data Governance

A Framework for Ethical Data Decision Making

A Framework for Ethical Data Decision-Making

- Identify the Ethical Issues
  1. Could this decision or situation be damaging to someone or to some group, or unevenly beneficial to people? Does this decision involve a choice between a good and bad alternative, or perhaps between two “goods” or between two “bads”?
  2. Is this issue about more than solely what is legal or what is most efficient? If so, how?
- Get the Facts
  3. What are the relevant facts of the case? What facts are not known? Can I learn more about the situation? Do I know enough to make a decision?
  4. What individuals and groups have an important stake in the outcome? Are the concerns of some of those individuals or groups more important? Why?
  5. What are the options for acting? Have all the relevant persons and groups been consulted? Have I identified creative options?
- Evaluate Alternative Actions
  6. Evaluate the options by asking the following questions:
     - Which option best respects the rights of all who have a stake? (The Rights Lens)
     - Which option treats people fairly, giving them each what they are due? (The Justice Lens)
     - Which option will produce the most good and do the least harm for as many stakeholders as possible? (The Utilitarian Lens)
     - Which option best serves the community as a whole, not just some members? (The Common Good Lens)
     - Which option leads me to act as the sort of person I want to be? (The Virtue Lens)
     - Which option appropriately takes into account the relationships, concerns, and feelings of all stakeholders? (The Care Ethics Lens)
- Choose an Option for Action and Test It
  7. After an evaluation using all of these lenses, which option best addresses the situation?
  8. If I told someone I respect (or a public audience) which option I have chosen, what would they say?
  9. How can my decision be implemented with the greatest care and attention to the concerns of all stakeholders?
- Implement Your Decision and Reflect on the Outcome
  10. How did my decision turn out, and what have I learned from this specific situation? What (if any) follow-up actions should I take?

Adapted from: https://www.scu.edu/ethics/ethics-resources/a-framework-for-ethical-decision-making/

https://anythingawesome.com

Data Ethics Canvas

https://theodi.org/article/data-ethics-canvas/

Data sources Name/describe your project’s key data sources, whether you’re collecting data yourself or accessing via third parties. Is any personal data involved, or data that is otherwise sensitive?	**Limitations in data sources** Are there limitations that could influence your project’s outcomes? — bias in data collection, inclusion/ exclusion, analysis, algorithms — gaps or omissions in data — provenance and data quality — other issues affecting decisions, such as team composition	**Sharing data with others** Are you going to be sharing data with other organisations? If so, who? Are you planning to publish any of the data? Under what conditions?	**Ethical and legislative context** What existing ethical codes apply to your sector or project? What legislation, policies, or other regulation shape how you use data? What requirements do they introduce? Consider: the rule of law; human rights; data protection; IP and database rights; anti- discrimination laws; and data sharing, policies, regulation and ethics codes/frameworks specific to sectors (eg health, employment, taxation).	**Rights around data sources** Where did you get the data from? Is it produced by an organisation or collected directly from individuals? Was the data collected for this project or for another purpose? Do you have permission to use this data, or another basis on which you’re allowed to use it? What ongoing rights will the data source have?
Your reason for using data What is your primary purpose for collecting and using data in this project? What are your main use cases? What is your business model? Are you making things better for society? How and for whom? Are you replacing another product or service as a result of this project?	**Communicating your purpose** Do people understand your purpose — especially people who the data is about or who are impacted by its use? How have you been communicating your purpose? Has this communication been clear? How are you ensuring more vulnerable individuals or groups understand? How are you ensuring more vulnerable individuals or groups understand?	**Positive effects on people** Which individuals, groups, demographics or organisations will be positively affected by this project? How? How are you measuring and communicating positive impact? How could you increase it?	**Negative effects on people** Who could be negatively affected by this project? Could the way that data is collected, used or shared cause harm or expose individuals to risk of being re-identified? Could it be used to target, profile or prejudice people, or unfairly restrict access (eg exclusive arrangements)? How are limitations and risks communicated to people? Consider: people who the data is about, people impacted by its use and organisations using the data.	**Minimising negative impact** What steps can you take to minimise harm? How could you reduce any limitations in your data sources? How are you keeping personal and other sensitive information secure? How are you measuring, reporting and acting on potential negative impacts of your project? What benefits will these actions bring to your project?
Engaging with people How can people engage with you about the project? How can people correct information, appeal or request changes to the product/service? To what extent? Are appeal mechanisms reasonable and well understood?	**Openness and transparency** How open can you be about this project? Could you publish your methodology, metadata, datasets, code or impact measurements? Can you ask peers for feedback on the project? How will you communicate it internally? Will you publish your actions and answers to this canvas openly?	**Ongoing implementation** Are you routinely building in thoughts, ideas and considerations of people affected in your project? How? What information or training might be needed to help people understand data issues? Are systems, processes and resources available for responding to data issues that arise in the long-term?	**Reviews and iterations** How will ongoing data ethics issues be measured, monitored, discussed and actioned? How often will your responses to this canvas be reviewed or updated? When?	**Your actions** What actions will you take before moving forward with this project? Which should take priority? Who will be responsible for these actions, and who must be involved? Will you openly publish your actions and answers to this canvas?

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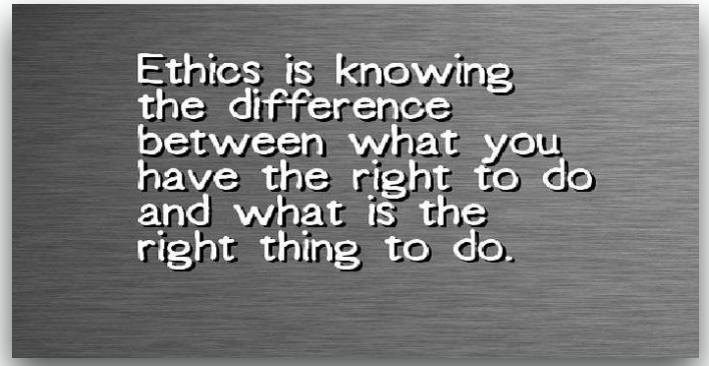
Roadmap for Data Ethics in Data Governance

1. **Ensure Data Governance, Data, and Data Ethics Literacy**
2. Tell stories about all of those, often
3. Incorporate Data Ethics reviews and corrections at all phases
4. Handle corrections in a non-blaming manner
5. Plan for "stop work" instructions, especially with experienced professionals
6. Reward ethical behavior, even when it impacts project plans
7. Review and Refine

Thoughts on Data Ethics

- Ethical data decisions require a foundation
- Ethical data actions span project timelines
- Data Ethics, Legality, Morality, and Goodness are all different topics



Key Technology Trends That Raise Data Ethics Issues

- Doubling of computer power
  - More organizations depend on computer systems for critical operations
- Rapidly declining data storage costs
  - Organizations can easily maintain detailed databases on individuals
- Networking advances and the Internet
  - Copying data from one location to another and accessing personal data from remote locations are much easier
  - Advances in data analysis techniques
- Profiling
  - Combining data from multiple sources to create dossiers of detailed information on individuals
- Nonobvious relationship awareness (NORA)
  - Combining data from multiple sources to find obscure hidden connections that might help identify criminals or terrorists
- Mobile device growth
  - Tracking of individual cell phones

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Data Quality/Governance & Data Ethics Topics

- Metrics
- Measurements
- Compliance/Enforcement
- Reporting up
- Reporting down
- Friends and Family

Factors Suppressing Ethical Data Actions

- Time pressures
- Lack of resources
- Ignorance
- Fatigue
- External influences
- Crime

- Threats
- Poorly planned rewards
- Poorly planned metrics
- Ego
- Boredom
- Financial pressures

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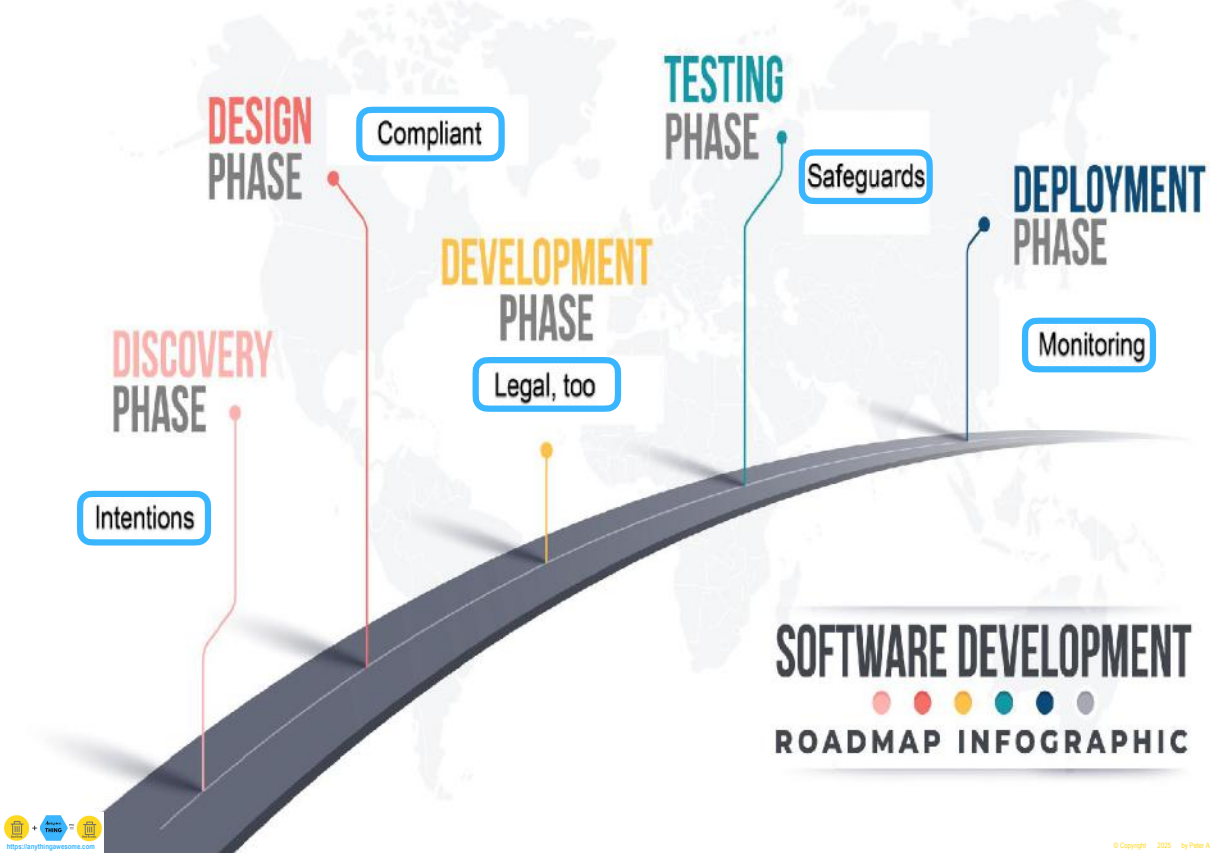
Every phase/sprint/waterfall should address data ethics



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Thoughts on Data Ethics

The IT profession has very little ethical oversight compared to other professions and almost zero focus on data ethics.

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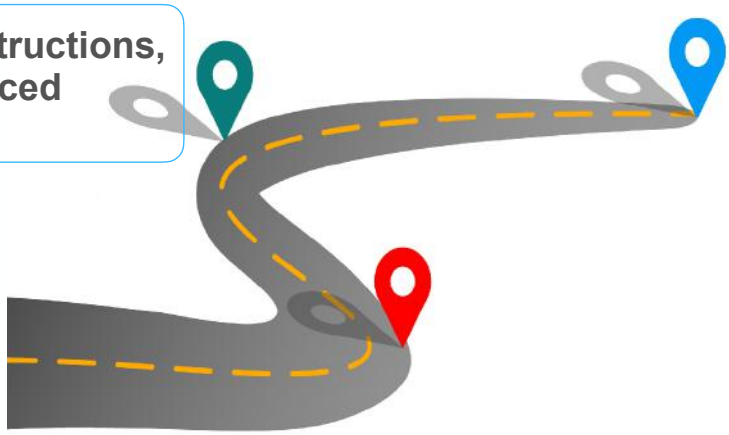

Thoughts on Data Ethics

- Codes of conduct can guide individual foci
- Organizational employment agreements tend to guide workplace data ethics behavior
- These will conflict increasingly in the future.

Roadmap for Data Ethics in Data Governance

1. Ensure Data Governance, Data, and Data Ethics Literacy
2. Tell stories about all of those, often
3. Incorporate Data Ethics reviews and corrections at all phases
4. Handle corrections in a non-blaming manner
5. Plan for "stop work" instructions, especially with experienced professionals
6. **Reward ethical behavior, even when it impacts project plans**
7. Review and Refine

Thoughts on Data Ethics

- Celebrate periodically
- Embrace deadline slips and contrast with the cost of legal or moral consequences

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Program Overview

- Principles - Ethical Lenses
- Data Governance-Specific Focus
- Frameworks for Ethical Data Decision Making
- The Right Path - The Roadmap for Data Ethics
- Examples
- In Summation/Q& A

The Importance of Ethics in Data Governance

Program Overview

- Principles - Ethical Lenses
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The Importance of Ethics in Data Governance

Topic #1: Ransomware

- Would you advise a criminal organization to adopt data governance?
- What advice would you give them?
- What advice wouldn't you give them?

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somware-hackers-apologize-to-arab-royal-families-for-leaking-their-data

Hackers Apologize to Arab Royal Families for Leaking Their Data

https://www.vice.com/en/article/n7nw8m/conti-ransomware-hackers-apologize-to-arab-royal-families-for-leaking-their-data

- October 2021
  - Conti (infamous ransomware gang) released thousands of files stolen from the UK jewelry s
- Now, the hackers would like the world to know that they regret their decision, perhaps in part be they released files belonging to very powerful people. …
  - "We found that our sample data was not properly reviewed before being uploaded to the blog," the hackers wrote in announcement published on Thursday. "Conti guarantees that any information pertaining to members of Saudi Arabia, UAE, and Qatar families will be deleted without any exposure and review."
  - "Our Team apologizes to His Royal Highness Prince Mohammed bin Salman and any other members of the Royal Families whose names were mentioned in the publication for any inconvenience," the hackers added.
- Imagine being a big-time ransomware hacker, thinking that you're pretty tough, fancying yourself a master criminal, giving yourself an intimidating online alias, maybe even being able, in certain circumstances, to call down violence on your enemies, and then realizing one day that you'd accidentally hacked a guy who had a journalist kidnapped, tortured to death and then dismembered with a bone saw for criticizing him.
- They are adding new compliance procedures to make sure this won't happen again:
  - The hackers also said that other than publishing the data on their site, they did not sell it or trade, and that from now on they will "implement a more rigid data review process for any future operations."
- We have talked before about the compliance function at ransomware firms. If you run a legal company, you have a compliance department to make sure that you don't do anything illegal, or at least, if your company is really big, to keep the illegality within acceptable limits. If you run a criminal gang, you have concerns that are different in degree but directionally similar: Your whole business is doing illegal things, sure, but you don't want to do too many things that are too illegal. You want to do crimes that make you money, but not crimes that get you shut down. You want to steal information from rich people and extort money from them. But not Mohammed bin Salman! Good lord!

Topic #2: Crypto

- "Every Bitcoin user has access to the public Bitcoin blockchain and can see every Bitcoin address and its respective transfers. Due to this publicity, it is possible to determine the identities of Bitcoin address owners by analyzing the blockchain," the ruling read. "There is no intrusion into a constitutionally protected area because there is no constitutional privacy interest in the information on the blockchain."
- The HSI agent wasn't caught in the Welcome to Video dragnet because IRS agents had violated his privacy. He was caught, the judges concluded, because he had mistakenly believed his Bitcoin transactions to have ever been private in the first place.

Topic #3: Failure Triage

Above the surface you see the
Symptoms
of the problem

Dig deeper to find the
Root Cause
of the problem

- Was it bad that the contractor was solely blamed for a multiple case failure?
- Should this be this new information be brought to management attention?
- Should this new information be relayed to the contractor?

Topic #4: Thresholds

- How do you know when to submit a formal issue?
- What will influence your next step more?
- How do you ensure you have a climate where you encourage the right sort of data behavior?

Topic #5: Guru Deflating

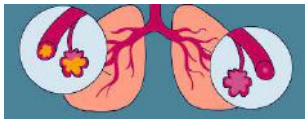
- How do you know when to call BS?
- Which will influence your next step more?
  - a) 1,000 cuts
  - b) Someone growing a pair
- How do you ensure you have a climate where you encourage the right sort of data behavior?

Topic #6: Societal Harm

- What do you do if you suspect that the data you are processing will be used for societal harm?
- What do you do if you are asked to use data for a purpose for which consent has not been obtained?
- When you turn to others for guidance within the organization?
- What do you turn to guidance outside of the organization?

Ethical Concerns

- Whether digitizing or modernizing, garbage in–garbage out is constant. It seems such an easy concept. Yet, repeatedly we discover concerning aspects of production systems. Poor results include:



  - Presenting with Pneumonia and ASTHMA at an emergency department and receiving an evaluation of no-big-deal

  - Recognition systems that cannot ‘see’ certain individuals

  - Sentencing algorithms with obvious discriminatory biases in production throughout the judicial system

  - Self-driving Software Systems that cannot tell the difference between a semi-truck and horse-drawn carriage

20 Seconds of Self-driving Software

1. Horse and buggy
2. Pedestrian
3. Semi-truck
4. Semi-truck sideways
5. Pickup truck
6. Semi-truck
7. Oncoming semi
8. Pedestrian following pickup truck
9. Pedestrian following semi-truck

https://www.dailymail.co.uk/sciencetech/article-11123757/Teslas-self-driving-software-confuses-horse-drawn-carriage-highway-semi-truck.html

Upcoming Events

Time: 19:00 UTC (2:00 PM NYC) | Presented by: Peter Aiken, PhD

Implementing Effective Data Governance – A Practical Guide

10 June 2025

Mastering Data Modeling: Understanding Conceptual, Logical, and Phsysical Models

8 July 2025

Four Effective Metadata Strategies

12 August 2025

Brought to you by:

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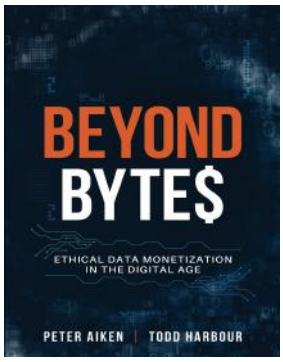
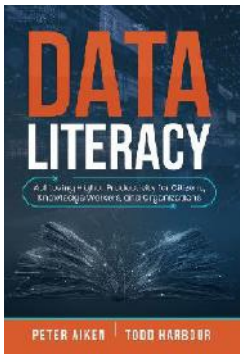
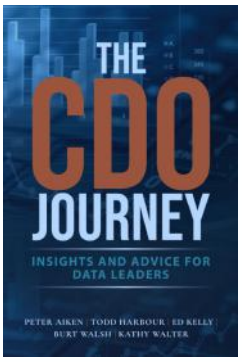
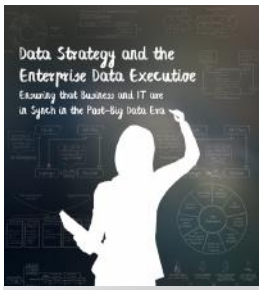
[Clicking any webinar title will link directly to the registration page]

Event Pricing on Peter's Books









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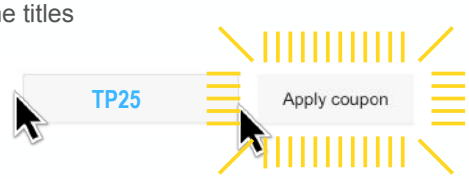

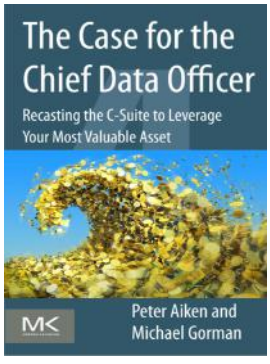

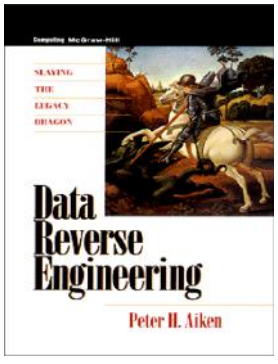

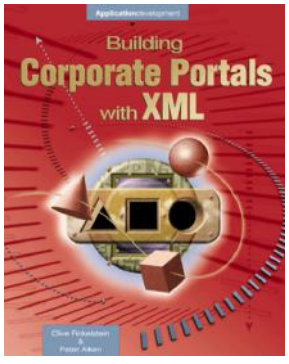

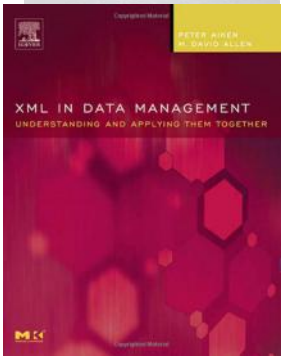

Independent Verification & Validation

Critical Design Review?

Executive Data Literacy Training?

Peter.Aiken@AnythingAwesome.com +1.804.382.5957

Mentoring?

Collaboration?

Reverse Engineering Expertise?

Hiring Assistance?

Thank You!

Use your data more strategically?

Tool/automation evaluation?

Book a call with Peter to discuss anything - https://anythingawesome.com/OfficeHours.html