Case Study in Ethical Use of AI Today
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Level Set on AI
## Basic Groups AI

| McCarthy Definition of AI (1955): Science & engineering of making intelligent machines |
|---|---|---|
| **Weak AI** | **Strong AI** |
| Artificial Narrow Intelligence | Artificial General Intelligence | Artificial Super Intelligence |

### Specific task

- **Weak AI**: Specific task
- **Strong AI**: Doesn’t exist today, and while it maybe a technological capability in the future, there will likely be regulation

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"Hey, Siri"

EU AI Act Text

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The Information Age is Old News

18th century  19th century  20th century  21st century

AGRICULTURE AGE
(farmers)

INDUSTRIAL AGE
(factory workers)

INFORMATION AGE
(knowledge workers)

CONCEPTUAL AGE
(creators and empathizers)

ATG
(affluence, technology, globalization)

Curation
There is a transparency wave in capital markets

The digital transformation of the finance function means executives have a higher expectation on what is knowable, and they are facing increasing personal liability for operations of their employing organization. Financial professionals need AI in order to curate the volume of data being generated.
Per ChatGPT: Human in the Loop refers to the involvement of human intervention, oversight, and decision-making alongside AI systems to ensure accuracy, accountability, and ethical considerations.

Image Source: DALL-E Prompt: “A realistic human brain as a node in a complex computer network diagram with right-angle and other cartoon computer icons as other nodes”
Types of Technology in AI

Included here:
- Anomaly detection on transactional data
- Generative AI → Foundational Models → Large Language Models (or Vision or Code...)

And can tune to use in NLP
Today’s Example
First Draft of Workpapers

“Write an auditor workpaper comment that all cash assertions had no findings in testing and list each assertion in a tabular format”

Audit workpaper comment:

We have completed our testing of the cash account and related transactions, and we have found no material misstatements or significant deficiencies. Our testing included evaluating the effectiveness of controls and substantive testing of account balances.

We have tested the following assertions related to cash and have found no exceptions:

<table>
<thead>
<tr>
<th>Assertion</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existence</td>
<td>Cash balances and transactions recorded in the financial statements exist and have occurred.</td>
</tr>
<tr>
<td>Completeness</td>
<td>All cash transactions and balances that should have been recorded in the financial statements have been recorded.</td>
</tr>
<tr>
<td>Accuracy</td>
<td>Cash balances and transactions recorded in the financial statements are accurate and have been properly classified.</td>
</tr>
<tr>
<td>Valuation</td>
<td>Cash balances and transactions recorded in the financial statements are valued appropriately.</td>
</tr>
<tr>
<td>Rights and obligations</td>
<td>The entity has legal rights to cash balances recorded in the financial statements, and cash is not subject to any restrictions or obligations.</td>
</tr>
</tbody>
</table>

Based on our testing, we are satisfied that the assertions related to cash are fairly presented in the financial statements. We will document our findings and conclusions in the final audit report.
Sure, here is an auditor workpaper comment that all cash assertions had no findings in testing, listed in a tabular format:

<table>
<thead>
<tr>
<th>Assertion</th>
<th>Test</th>
<th>Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existence</td>
<td>Traced cash receipts and disbursements to supporting documentation.</td>
<td>All cash receipts and disbursements were supported by documentation.</td>
</tr>
<tr>
<td>Completeness</td>
<td>Footed the cash receipts and disbursements journals.</td>
<td>All cash receipts and disbursements were recorded.</td>
</tr>
<tr>
<td>Accuracy</td>
<td>Recalculated the totals of the cash receipts and disbursements journals.</td>
<td>The totals of the cash receipts and disbursements journals were accurate.</td>
</tr>
<tr>
<td>Cutoff</td>
<td>Tested the cutoff of cash receipts and disbursements.</td>
<td>All cash receipts and disbursements were recorded in the correct period.</td>
</tr>
<tr>
<td>Classification</td>
<td>Classified cash receipts and disbursements in the correct accounts.</td>
<td>All cash receipts and disbursements were classified in the correct accounts.</td>
</tr>
</tbody>
</table>

This comment provides evidence that the auditor has tested all of the cash assertions and found no findings. This is important because it helps to ensure that the financial statements are free from material misstatement.
What does AI say about us using AI?
“What are the accounting ethical risks to using a large language model?”

When using a large language model like ChatGPT for accounting purposes, it’s important to consider several ethical considerations. Here are some key points to keep in mind:

1. Confidentiality: Ensure that any sensitive financial or personal information provided during interactions with the language model is kept confidential and secure. Take necessary measures to protect data privacy and comply with relevant regulations, such as the General Data Protection Regulation (GDPR) or other applicable data protection laws.

2. Accuracy and Objectivity: Maintain a high level of professionalism and accuracy when using the language model for accounting tasks. Avoid misrepresenting financial information or manipulating the model’s outputs to suit personal or organizational interests.

3. Professional Judgment: Recognize that the language model is a tool and not a substitute for professional judgment. While it can provide valuable insights and suggestions, final decisions should be based on the expertise of qualified accountants or professionals.

4. Conflict of Interest: Be mindful of any potential conflicts of interest that may arise when using a language model. If the model is owned or operated by a third-party with vested interests, ensure that such affiliations do not compromise the objectivity and integrity of the accounting process.

5. Transparency: Clearly communicate to stakeholders, such as clients or colleagues, when using a language model as part of the accounting process. Inform them about the model’s capabilities, limitations, and any potential impact on the services provided.

6. Compliance with Regulations: Adhere to applicable accounting standards, regulations, and ethical guidelines, such as those set by professional accounting bodies or regulatory authorities. Ensure that the use of the language model aligns with these requirements.

7. Ongoing Learning and Accountability: Stay updated with the latest developments in the field of artificial intelligence and language models to ensure that you are using them responsibly. Hold yourself accountable for the decisions made based on the model’s outputs.

Remember, ethical considerations in accounting extend beyond the use of language models. It’s important to integrate these principles into broader accounting practices and uphold professional standards of integrity, objectivity, and transparency.

Source: ChatGPT
Summarize the changes to the IESBA Ethical Code for technology”

As of my knowledge cutoff in September 2021, the International Ethics Standards Board for Accountants (IESBA) had proposed changes to their ethical code to address the impact of technology on the accounting profession. Here is a summary of some key changes:

1. Addressing Technology-Related Threats: The proposed changes aim to address technology-related threats to ethical principles such as confidentiality, professional competence, and due care. The revised code encourages accountants to stay updated on relevant technologies and consider their impact on ethical obligations.

2. Confidentiality and Data Protection: The changes emphasize the need to protect and maintain the confidentiality of client information in the context of technological advancements. Accountants are required to implement safeguards to ensure the security of client data and comply with relevant data protection laws.

3. Professional Competence and Due Care: The revised code highlights the importance of maintaining professional competence in areas related to technology, including understanding the risks and opportunities associated with emerging technologies. Accountants are encouraged to acquire the necessary knowledge and skills to provide quality services to their clients.

4. Technology Competence: The proposed changes stress the need for accountants to possess a level of technology competence appropriate to their role and responsibilities. This includes understanding the benefits, risks, and limitations of relevant technologies to effectively fulfill professional obligations.

5. Independence: The code addresses potential threats to independence arising from technology-related issues. Accountants are required to assess and manage such threats to ensure their objectivity and independence in providing services.

It’s important to note that the IESBA’s ethical code is subject to updates and revisions over time. To get the most accurate and up-to-date information on the changes to the IESBA Ethical Code regarding technology, it’s recommended to consult the IESBA’s official website or other reliable sources for the latest developments in this area.
(1) The International Ethics Standards Board for Accountants (IESBA) has strengthened its global ethics standards to respond to the transformative effects of technological innovation. The changes, which were informed by extensive fact-finding and stakeholder outreach, aim to guide the ethical mindset and behavior of professional accountants in both business and public practice as they take advantage of the opportunities created by technology and adapt to new technology.

(2) The revisions to the International Code of Ethics for Professional Accountants (including International Independence Standards) (the Code) include:

- Enhanced guidance on the fundamental principles of confidentiality, professional competence and due care, and dealing with circumstances of complexity.
- Addressing the circumstances in which firms and network firms may or may not provide a technology-related non-assurance service to an audit or assurance client.

The revisions apply to the use of any technology, including the extent possible, future technologies. They are designed to remain relevant and applicable in the ever-evolving landscape of technology transformation.

The changes to the Code include the following:

- Confidentiality: Professional accountants must take reasonable steps to protect the confidentiality of information obtained in the course of their work, including information that is stored or processed using technology.
- Professional competence and due care: Professional accountants must maintain their professional competence and exercise due care in their work, including when using technology. This includes assessing the risks and benefits of using technology, and taking steps to mitigate any identified risks.
- Dealing with circumstances of complexity: Professional accountants must be able to identify and deal with circumstances of complexity, including those that arise from the use of technology. This includes being able to assess the implications of technology for the work, and taking steps to mitigate any identified risks.
- Independence: The IIS have been strengthened and clarified to address the circumstances in which firms and network firms may or may not provide a technology-related non-assurance service to an audit or assurance client. This includes services such as data analytics, cloud computing, and artificial intelligence.

The changes to the Code are a significant step forward in ensuring that professional accountants are equipped to navigate the ethical risks and challenges brought on by technology. They will help to protect the public interest and ensure that professional accountants can continue to provide high-quality services in the digital age.

Sources:
1: [https://www.ethicsboard.org/focus-areas/technology-ethics-independence-considerations](https://www.ethicsboard.org/focus-areas/technology-ethics-independence-considerations)
Cute... but what is the practical use today?
What ethical requirements exist when you rely upon:

<table>
<thead>
<tr>
<th></th>
<th>Staff</th>
<th>AI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrity</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Objectivity</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Professional Competence &amp; Due Care</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Confidentiality</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Professional Behavior</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

We all know that using technology release us of our ethical responsibilities; it becomes a matter of how to execute.
Integrity
Integrity

Open Al’s Sharing & Publication Policy

Creators who wish to publish their first-party written content (e.g., a book, compendium of short stories) created in part with the OpenAI API are permitted to do so under the following conditions:

• The published content is attributed to your name or company.

• The role of AI in formulating the content is clearly disclosed in a way that no reader could possibly miss, and that a typical reader would find sufficiently easy to understand.

• Topics of the content do not violate OpenAI’s Content Policy or Terms of Use, e.g., are not related to adult content, spam, hateful content, content that incites violence, or other uses that may cause social harm.

• We kindly ask that you refrain from sharing outputs that may offend others.

Requirement

R111.2 (c) A professional accountant shall not knowingly be associated with … communications or other information where the accountant believes that the information … omits or obscures required information where such omissions or obscurity would be misleading.
Objectivity
R112.1(a) A professional accountant shall comply with the principle of objectivity, which requires an accountant to exercise professional or business judgement without being compromised by bias ...

Objectivity

- Anchoring bias
- Automation bias
- Availability bias
- Confirmation bias
- Groupthink
- Overconfidence bias
- Representation bias
- Selective perception

Requirement

Biases per 120.12 A2
Professional Competence & Due Care
R113.1(a) A professional accountant shall comply with the principle of professional competence and due care, which requires and accountant to attain and maintain professional knowledge and skill at the level required to ensure that a client or employing organization receives competent professional service, based on current technical and professional standards and relevant legislation...

Current Requirement

Professional Competence & Due Care

ISQM 1 Service Provider (A107 & A108) & IT Application (A100 & A101) Assessments

IESBA Technology Ethics (R220.8/ R320.11)
But Large Language Models /AI can have hallucinations

“Tell me everything you know about Danielle Supkis Cheek.”

PS – not a word of this has any truth, and I have no past or current relatives with similar names.
IESBA Biases Mitigation

- Seeking advice from experts to obtain additional input
  - When do I need to bring in a data scientist, developer, or technologist?

- Consulting with others to ensure appropriate challenge as part of the evaluation process
  - Is the workpaper/binder review processes in place enough or need more?

- Receiving additional training related to the identification of bias as part of the professional development
  - How much do you need to be able to appropriately rely and take responsibility for output?

Per 120.12 A3
Centralized v. Decentralized Methodology

The computational power is methodology agnostic

- **Solo**
  - Purchased 3rd-party methodology that is never modified

- **Big4**
  - Firm developed proprietary methodology

- **Size of Firm**
  - Purchased 3rd-party methodology and applied as-needed modifications for certain engagement/office/industry needs
  - Purchased 3rd-party methodology with wholistic modifications made by a methodology team
How to Supervise AI (Unsupervised Machine Learning)

Are transactions that are known to be rare and infrequent (i.e. month-end close entries) showing in the results?
(On Risk Overview, remove low risk transactions on the time series view, and switch to daily to see if there are monthly spikes of medium/high risk)

Completeness Report of the data set export from MindBridge (include roll forward report if interim data was provided)

Additional Optional Organization-Level Testing and Approval
(Some firms do this by importing a small data and turning off all control points but one, then comparing MB results to manual calculations. This would be repeated for all control points.)

3rd-party assurance over algorithms

3rd-party assurance over data security, etc.

Firm Centralized

Engagement Specific

Privacy | Explainability | Robustness | Bias

3rd-party assurance over algorithms

Low Risk

Holistic AI

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Examples of How to Oversight AI (Supervised Machine Learning)

- **Representative Testing Data Sets**
- **Cross-Validation**
  Hold back training data to use for validation
- **Relevant Evaluation Metrics**
  Including statistical significance tests of results
- **FairTest Design**
  Divide results into small populations to identify groups that could be harmed
- **Gradient Feature Auditing**
  Feed model data with indirect attributes that should not be related to outcome to look for proximate variables that have a veiled relationship
- **Flip Test**
  Had someone had a different protected status, would the model treat them difference?
The AI Act is a proposed European law on artificial intelligence (AI) – the first law on AI by a major regulator anywhere. The law assigns applications of AI to three risk categories. First, applications and systems that create an unacceptable risk, such as government-run social scoring of the type used in China, are banned.

Second, high-risk applications, such as a CV-scanning tool that ranks job applicants, are subject to specific legal requirements.

Lastly, applications not explicitly banned or listed as high-risk are largely left unregulated.
Good Project Management is a Quality Indicator

**Planning is a quality indicator:**
Properly scoped planning is the foundation of a quality engagement and good project management.

**Efficiency is a quality indicator:**
Focusing on what matters and not over-testing areas that provide no marginal assurance nor under-testing errors that have unknown risk.

**Staffing is a quality indicator:**
Assign staff appropriately given real risk of an engagement.

**Early-stage issue identification is a quality indicator:**
Within the engagement timeline, when you find an issue can impact the pace and time you have to respond to an issue.

Unintended benefit is that good project management is not usually bad for client relations nor commercial considerations.
Confidentiality
Confidentiality

Open AI’s Privacy Policy

<table>
<thead>
<tr>
<th>Category of Personal Information</th>
<th>Disclosure of Personal Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifiers, such as your contact details</td>
<td>We disclose this information to our affiliates, vendors and service providers, law enforcement, and parties involved in Transactions.</td>
</tr>
<tr>
<td>Commercial Information, such as your transaction history</td>
<td>We disclose this information to our affiliates, vendors and service providers, law enforcement, and parties involved in Transactions.</td>
</tr>
<tr>
<td>Network Activity Information, such as Content and how you interact with our Services</td>
<td>We disclose this information to our affiliates, vendors and service providers, law enforcement, and parties involved in Transactions.</td>
</tr>
<tr>
<td>Geolocation Data</td>
<td>We disclose this information to our affiliates, vendors and service providers, law enforcement, and parties involved in Transactions.</td>
</tr>
<tr>
<td>Your account login credentials (Sensitive Personal Information)</td>
<td>We disclose this information to our affiliates, vendors and service providers, law enforcement, and parties involved in Transactions.</td>
</tr>
</tbody>
</table>

Current Requirement

R114.1 (a) An accountant shall be alert to the possibility of inadvertent disclosure; (d) Not disclose confidential information ... outside the firm or employing organization without proper and specific authority...

Coming Requirement

114.1 A1 Maintaining the confidentiality of information ... involves the professional accountant taking appropriate action to protect the confidentiality of such information in the course of its collection, use, transfer, storage or retention, dissemination and lawful destruction.
Data Governance at a Company is Hard

It’s even harder for auditors working with different organizations due to the lack of standardization in the corporate world.

Data Residency Risks
(per Chat GPT)

1. Data breaches and cyberattacks: The risk of unauthorized access, data breaches, and cyberattacks targeting stored data.
2. Government surveillance and access: Government surveillance programs and legal frameworks that grant authorities access to private data.
3. Inadequate data protection laws: Weak or inadequate data protection laws and regulations that may compromise the security and privacy of stored data.
4. Political instability and legal uncertainties: Political instability, changes in government, or legal uncertainties that can impact data protection and access rights.
5. Data localization requirements: Government mandates or regulations that require data to be stored locally, which may increase the risk of data exposure and hinder cross-border data transfers.

Don’t forget: Primary & Redundancy
In a table, list the top 5 largest economies by country and list the access the government has to private corporate data and an additional column that lists the local laws that allow the government that access.

Here's a table that includes the top 5 largest economies by country, along with information about government access to private corporate data and the corresponding local laws that allow such access. Please note that this information is based on general knowledge and may not capture the full complexity and nuances of each country's legal framework. It's always advisable to refer to official sources or legal experts for the most accurate and up-to-date information.

<table>
<thead>
<tr>
<th>Country</th>
<th>GDP Ranking</th>
<th>Government Access to Private Corporate Data</th>
<th>Relevant Local Laws</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>1</td>
<td>Limited government access with legal safeguards</td>
<td>Fourth Amendment to the United States Constitution</td>
</tr>
<tr>
<td>China</td>
<td>2</td>
<td>Extensive government access under various laws and regulations</td>
<td>Cybersecurity Law, National Intelligence Law, etc.</td>
</tr>
<tr>
<td>Japan</td>
<td>3</td>
<td>Limited government access with legal safeguards</td>
<td>Constitution of Japan, Act on the Protection of Personal Information</td>
</tr>
<tr>
<td>Germany</td>
<td>4</td>
<td>Limited government access with legal safeguards</td>
<td>Basic Law (Grundgesetz), Federal Data Protection Act</td>
</tr>
<tr>
<td>India</td>
<td>5</td>
<td>Government access under certain circumstances</td>
<td>Information Technology Act, 2000</td>
</tr>
</tbody>
</table>

Please note that the level of government access and the specific laws can vary within each country and depend on factors such as the nature of the data, national security concerns, and privacy regulations. It's important to consult official sources or legal experts for detailed and up-to-date information specific to each jurisdiction.
Centralized v. Decentralized Data Strategy

Low engagement volume does not warrant investment in centralized strategy unless high growth expected.

Most successful when high volume of similar engagements (especially in industry sub-groups)

Many engagements are so complex that centralized mapping leads to more exceptions than not.

Size of Firm

Level of Centralization of Data Strategy

Solo

Big4
Professional Behavior
Professional Behavior

Requirement

R115.1(b) An accountant shall ... behave in a manner consistent with the professional’s responsibility to act in the public interest in all professional activities...

Requirement

R115.1(a) An accountant shall ... comply with relevant laws and regulations ...
Is this ok, today?
Write an auditor workpaper comment that all cash assertions had no findings in testing and list each assertion in a tabular format.
Change Management
Most Advanced Yet Acceptable

MAYA

• Advance gradually
• Include familiar patterns
• Draw on current skills and mindset

The MAYA Principle

Loewy’s secret was essential to design for the future – but delivering the future gradually. He designed his famous logos, some of the most recognizable cars of the 40s, 50s, and 60s, refrigerators, and locomotives for his users’ present needs and skills while pushing the boundaries of design and technology beyond his users’ expectations. He called this approach the MAYA principle. Maya is an abbreviation for “Most Advanced Yet Acceptable,” which means that Loewy sought to give his users the most advanced design, but not more advanced than what they were able to accept and embrace. Loewy believed that:

“The adult public’s taste is not necessarily ready to accept the logical solutions to their requirements if the solution implies too vast a departure from what they have been conditioned into accepting as the norm.”
AI Use Cases for Traditional External Audit

- **Quick efficiency wins** (derive PBC subpopulations, planning analytics, stitched entries for quick search, generate workpapers first drafts, etc.)
- **JE CAAT/ JET testing**
- **Basic modification of sampling approaches**
- **Advanced, innovative modification of sampling approaches**
- **Path to substantive analytics assurance**

The diagram illustrates the extent of planning along the x-axis and the degree of transformation along the y-axis, with quick efficiency wins at the bottom left and advanced analytics at the top right.
Forced Change versus Voluntary Change

There are two types of change you will encounter in any organization:

1. Forced change
2. Voluntary change

Watch Edge 2022: Driving Change When Change is Optional
Thank you

Questions?
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