

Engineering and Business Ethics: What's the Difference?

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...some info taken from

**“Why Good Accountants Do Bad Audits”
Harvard Business Review**

Format of Presentation

- How engineers rank, ethically
- Morals vs ethics
- Codes of conduct
 - Engineering
 - Business
- Enron!
- Are all accountants crooks?
- It could happen to us!?

1985 Survey (Kemper)

- 1000 Americans polled

<u>OCCUPATION</u>	<u>High or very high</u>
– Clergy	61%
– Physicians	48%
– Engineers	45%
– Public office holders	16%
– Car salesmen	6%

1990 Survey (Zinckgraf)

- 1000 Corporate Executives polled (forced choice)

– OCCUPATION Which most ethical

– Engineer	34%
– CPA	24%
– Doctor	17%
– Dentist	7%
– Lawyer	8%
– Other	10%

1989 NSPE Survey of Members

Frequency of encountering decisions that require ethical judgment:

- | | |
|----------------|-----|
| – Frequently | 25% |
| – Occasionally | 45% |
| – Seldom | 13% |
| – Rarely | 13% |
| – No answer | 4% |

Morals vs Ethics

- **Morals:** good or bad character
- **Ethics:** systematic method guided by individual moral values that aids in the making of value-laden decisions

Can you teach “morals” or “ethics” to an adult?

- **Morals**

- No, they are already formed
- Product of strong parental, cultural, psychological, and genetic factors

- **Ethics**

- Yes, given the previous definition
- One just needs to learn the format

The teaching of ethics

- Very established in the pedagogy of philosophy and religion
- Mature topic in medicine and law
- Infancy stage in both engineering and business

Engineering Ethics: Codes of Conduct

- ASCE
- NSPE
- ASME
- IEEE
- ASHRAE
- etc.....

Professional societies have similar codes of conduct

NSPE Code of Ethics
FUNDAMENTAL CANONS
RULES OF PRACTICE

#1

**Maintain safety, health & public
welfare**

NSPE Code of Ethics
FUNDAMENTAL CANONS
RULES OF PRACTICE

#2

**Perform services only in area of
competence**

NSPE Code of Ethics
FUNDAMENTAL CANONS
RULES OF PRACTICE

#3

**Public statements must be
objective and truthful**

NSPE Code of Ethics
FUNDAMENTAL CANONS
RULES OF PRACTICE

#4

**Be a faithful agent or trustee in
representing employer or client**

NSPE Code of Ethics
FUNDAMENTAL CANONS
RULES OF PRACTICE

#5

**Avoid deception in solicitation of
professional employment**

NSPE Code of Ethics
FUNDAMENTAL CANONS
RULES OF PRACTICE

#6

**Conduct oneself honorably,
responsibly, ethically, and
lawfully**

LAPELS Board

- Governed by two documents:
 - Law (LA Revised Statutes 37:681-37:703)
 - Rules of the Board (LA Administrative Code)
- Rules include Professional Conduct (Chapter 25)
 - Scope
 - Licensees
 - Services
 - Conflicts of interest
 - Improper solicitation
 - Conduct of advertising

LAPELS Rules of Conduct

- Rules are binding on every licensee
- Licensees:
 - Hold paramount public safety
 - Seal only acceptable work performed by licensee or under licensee's charge
 - Shall be objective and truthful in all reports, statements and testimony
 - Shall perform services only in area of competency

LAPELS Rules of Conduct

- Shall be faithful agents or trustees of employer and client
 - Shall disclose all known or potential conflicts of interest
- Shall avoid improper solicitation of professional employment or services
- Shall not make exaggerated, misleading, deceptive or false statements or claims about professional qualifications

What about Business Ethics?

- Corporate citizenship
- Protecting the business entity
- Protecting business assets

Business Ethics: Corporate citizenship

- Shall demonstrate courtesy, respect and honesty with customers, clients, suppliers, etc.
- Shall comply with health, safety, and legal regulations
- Shall conduct business in an ethical way
- Shall recognize diversity in the workforce
- Shall be environmental conscious

Business Ethics: Protecting the business entity

- Shall not engage in unhealthy, unsafe, illegal, or immoral conduct while on company business
- Shall avoid conflicts of interest
- Shall not participate in bribery
- Shall not make false statements about product/services

Business Ethics: Protecting business assets

- Shall strive to create a positive work place (increases productivity)
- Shall use assets in a fair and responsible way
- Shall strive to provide the highest quality product/service
- Shall maintain confidentiality of all records
- Shall exhibit high standards of personal integrity and professional conduct

Lets focus on Accounting:

American Institute of Certified Public
Accountants (AICPA)

AICPA Code of Conduct
**PRINCIPLES OF
PROFESSIONAL CONDUCT**

#1

Maintain and enhance profession

AICPA Code of Conduct
**PRINCIPLES OF
PROFESSIONAL CONDUCT**

#2

**Serve public interest, honor
public trust**

AICPA Code of Conduct
**PRINCIPLES OF
PROFESSIONAL CONDUCT**

#3

**Perform duties with highest sense
of integrity**

AICPA Code of Conduct
**PRINCIPLES OF
PROFESSIONAL CONDUCT**

#4

**Maintain objectivity (free from
conflict of interest)**

AICPA Code of Conduct
**PRINCIPLES OF
PROFESSIONAL CONDUCT**

#5

**Observe technical standards and
constantly improve competence**

AICPA Code of Conduct
**PRINCIPLES OF
PROFESSIONAL CONDUCT**

#6

**Adhere to Principles of the Code
of Professional Conduct**

State Board of CPA of LA

- Governed by two documents:
 - Law (LA Revised Statutes)
 - Rules of the Board (LA Administrative Code)
- Rules include Professional Conduct (Chapter 17)
 - Independence
 - Integrity and Objectivity
 - Competence
 - Conflicts of interest
 - Confidentiality
 - Conduct of advertising

ENRON!

- 1985 Houston natural gas company merges with a gas provider
- 1998 Enters water and wastewater market
- 1999 Sells broad band internet services as a wholesale commodity
- 2000 Fortune ranks Enron #24 of “Top 100 Companies to Work for in America”

ENRON!

- 2001 Securities & Exchange Commission investigates Enron acct. records
 - Dept of Labor → handling of retirement pensions
 - SEC → investigates independent auditors Arthur Andersen
 - Enron files Chapter 11 bankruptcy: largest in US history

- 2002 Justice Dept → criminal investigation of Enron: financial disclosures, investments, and pension policy

Corruption and Criminality?

Is this just a bunch of unethical accountants falsifying numbers to protect unethical clients?

Accounting and Unconscious Bias

- Many accounting scandals
 - May seem flagrant
 - such as Andersen's audits of Enron
 - At their core
 - a series of unconsciously biased judgments
 - rather than a deliberate program of criminality

Isn't **Accounting** purely objective

“black and white”

...or many shades of grey!

- Money magazine gives 30-50 professional tax preparers a hypothetical family's tax records
- 1998 taxes ranged \$37,715 - \$68,912
- 1990 taxes ranged \$6,807- \$73,247

What is income?

What is deductible?

Which depreciation schedule is appropriate?

Corporate accounting

- When do you recognize revenue?
- Which items do you expense?
- Is it an investment or an expense?

Unconscious Bias

- Psychological studies
 - Our desires powerfully influence the way we interpret information
 - Even if we try to be objective and impartial
 - Most of us think
 - We are better than average drivers
 - Our kids are smarter than average
 - We are not too drunk to drive
- We erroneously conclude that our decisions are free from bias

Are professional accountants immune to such bias?

- They work with hard numbers
- They are guided by clear standards

Sounds familiar?

Three aspects of auditing that leave an opening for bias

- AMBIGUITY

- Possibility of interpreting information in different ways
- In accounting: is it an investment or an expense and when do you realize revenue?

- ATTACHMENT

- Auditors have strong motivation to remain in a client's good graces

- APPROVAL

- Auditors must ultimately reject or agree with the client's own accounting

Three aspects of human nature that leave an opening for bias

- FAMILIARITY

- People are more willing to harm strangers than people they know

- DISCOUNTING

- People are far more responsive to immediate consequences, rather than delayed, uncertain ones

- ESCALATION

- People may explain away minor oversights, sometimes without realizing it.
- Over time they build up and are recognized
- Sometimes people, instead of owning up, conceal the oversights

Joseph Berardino, former chief executive, Arthur Andersen

“Many people think accounting is a science, where one number...is *the* number, and it’s such a precise number that it couldn’t be two pennies higher or two pennies lower. I come from a school that says it really is much more of an art.”

...in his congressional testimony on the Enron collapse

Charles Niemeier, chief accountant, SEC Enforcement Division

“People who never intend to do something wrong end up finding themselves in situations where they are almost forced to continue to commit fraud once they have started doing [escalation].”

Business student survey

- Given info about a sale of a fictional company
- Asked to estimate company's value
 - Buyer
 - Seller
 - Buyer's auditor
 - Seller's auditor

Survey: initial results

- Sellers: thought company was worth more
- Buyers: thought company was worth less
- Auditors: strongly in line with what their “client” believed

buyer's auditor → buyer's value

seller's auditor → seller's value

Survey: final results

- Auditors then asked to estimate “true” value
 - Rewarded according to how close they were to actual value attained by impartial expert
- Seller’s auditor still 30% higher than buyer’s auditor’s value

Similar survey of professional auditors had similar results

Isn't **Engineering** purely
objective

“black and white”

Will we have similar problems in
our profession?

What are the loads?

What is the risk of failure and is it acceptable?

Do we really understand the tools of our profession that we use?

Misuse of computers in engineering

- Leroy Emkin, Ph.D., P.E.
 - Professor, Georgia Institute of Technology
 - Developer of GTSTRUDL, finite element code
 - Gave a recent interesting presentation in New Orleans
 - Focused on use of computers in structural engineering

Old fashioned engineering

- Required truly understanding the problem
- Required the use of simplifying assumptions (conservative)
- Required tedious hand calculations
 - Engineer then truly intimately involved in each step of the solution
 - Heavy reliance on wisdom and experience

Engineering today

- Heavily reliant on computers and computer programs
 - Many application software on the market
 - Capable of quick results
 - Complete with beautiful graphics
 - Designed to be easy to use → why read the manual?!

Emkin's concerns

- Software is often used by inexperienced engineers
 - Under a senior engineer's charge
 - Must judge if the software is appropriate for each specific use
 - Must judge the quality and relevance of the results
 - Usually has the most limited knowledge
 - Structural principles
 - Basis of design code provisions

What about you?

- Senior engineers:
 - should act as mentors
 - give input into selection of software
 - From a code provision point of view
 - Design assumptions and applicability of software for modeling of a specific complex system
- Users of software:
 - familiar with the software's
 - Underlying limitations
 - Theoretical assumptions and basis of code
 - Validate the software
 - Run a quick hand check of critical elements

Thanks
Questions?