The Rights and Responsibilities of Engineers

Case Study

- In the early 1970s, an innovative and highly automated train system was nearing completion on the Bay Area Rapid Transit (BART) system in the San Francisco Bay metropolitan area.
- In the spring of 1972, while working on the project, the three engineers became concerned about the safety of the automated control system and were not satisfied with the test procedures.
- Unable to get a satisfactory response from their immediate supervisors, the engineers resorted to an anonymous memo to upper management detailing their concerns and even met with a BART board member to discuss the situation.
- The information on the problems at BART was leaked to the press by the board member, leading to the firing of the engineers.
- They subsequently sued BART and were aided in their suit by the IEEE, which contended that they were performing their ethical duties as engineers in trying to protect the safety of the public that would use BART.
- Eventually, the engineers were forced to settle the case out of court for only a fraction of the damages that they were seeking.

Professional Responsibilities

Keep Proprietary Information Confidential

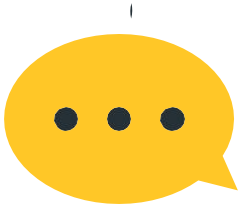
Affects the company's ability to compete in the marketplace

Obvious Types: test results and data, information about upcoming unreleased products, and designs or formulas for products

Not so Obvious Types: Company organogram, the identity of suppliers, marketing strategies, production costs, and production yields. Internal communication regarding a product: **Proprietary**

Grey Area?

Professional Responsibilities



Conflict of Interest

Situations in which a decision maker must balance personal interests with corporate or organizational interests.

Actual CoI: Developing and testing the same product.
Potential CoI: Friends with the QA team.
Appearance of CoI: Getting paid based on the cost of design

Ways to Avoid: Follow the guidance of the company policy. Get a second opinion to make it clear that you aren't trying to hide something. Use your own judgment to decide if it is ethical or not.

Professional Responsibilities

Competitive Bidding

Can lead to temptations such as submitting an unrealistically low bid in order to secure work, making negative and disparaging comments about potential other bidders, and attempting to subvert the bidding process through back channel contacts.

Professional Rights

- Rights to privacy, rights to participate in activities outside work, rights to object company policy are common.
- The most fundamental right of an engineer is the right of professional conscience.
- Rights to conscience includes "*Rights of Conscientious Refusal*".
- Employers should also be reasonable in accommodating professional requests.

Whistle-Blowing

The act by an employee of informing the public or higher management of unethical or illegal behavior by an employer or supervisor.

Types of Whistle-blowing

Internal
Within the company

External
Outside the company

Acknowledged
Revealing the name

Anonymous
Concealing the name

Whistle-blowing in Tech

Edward Snowden
Disclosed that the NSA was using programs like PRISM & Upstream to gather & monitor the private communications of millions of people globally

Frances Haugen
Former Facebook product manager leaked thousand of documents in which she claimed that the platform knew its algorithm was showing harmful content & spreading misinformation to users.

Zach Vorhies
Former Google senior software engineer leaked 950 documents & claimed in 2019 that the service was biased against conservative viewpoints in its search results and engaged in the censorship of other products.

Peiter Zatko
Former head of security, Twitter put allegations that the top executives misled the company's board & govt regulators about its security flaws, potentially used for hacking, manipulation, and foreign espionage.

When should we Whistle-blow?

Need
Clear and important harm.

Proximity
Closely related. Hearsay is not adequate.

Capability
Reasonable chance of success in stopping

Last Resort
No one else more capable or proximate available

We should blow the whistle only if these conditions are all met.

Preventing Whistle-blowing

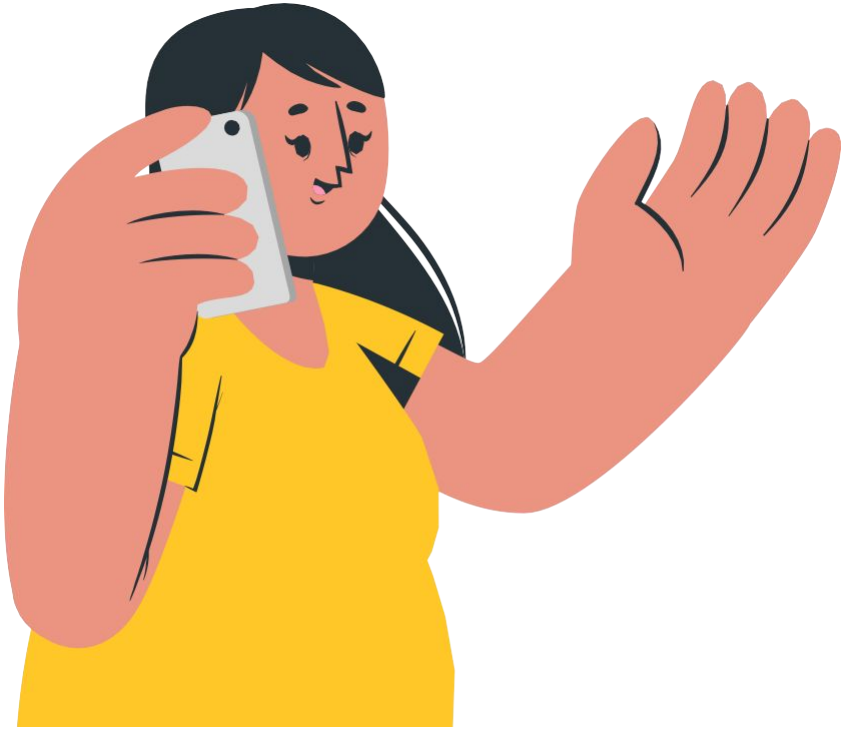
Ethics Culture
There should be strong ethics culture between all employees including managers.

Communication
There should be clear lines of communication within the corporation.

No Retaliation
There should be meaningful access to managers with guarantee of no retaliation

Admit Mistakes
There should be willingness of management to admit mistakes

THANKS!



Does anyone have any questions?

References

Engineering Ethics by CHARLES B. FLEDDERMANN: Chapter 6

ENGINEERING ETHICS Concepts and Cases by CHARLES E. HARRIS 4e: Chapter 8