# Engineering Ethical Issues

# Engineering ?

**Engineering** is the process of developing an efficient mechanism which quickens and eases the work using limited resources, with the help of technology..

**Engineers** . . .

• **Build products** such as cell phones, home appliances, heart valves, bridges, & cars. In general they advance society by building new technology.

• **Develop processes**, such as the process to convert salt water into fresh water or the process to recycle bottles. These processes change how we live and what we can accomplish.

# Ethics ?

**Ethics** are

- The principles accepted by the society, which also equate to the moral standards of human beings. (Moral principles of right and wrong)
- Rules and ideals for human behavior

**Ethics**

- Tells us what we should do
- Defined somewhat differently for each profession
- Interpreted differently by each individual

## Ethics in an Engineering Course????

We have been studying engineering, such as design, analysis, and performance measurement.

**Where does ethics fit in?**

**Decisions made by engineers usually have serious** consequences to people -- often to multitudes of people.

**Ethics and ethical reasoning** guide decision-making.

# Engineering Ethics?

Engineering ethics is:

- The rules and standards govering the conduct of engineers in their role as professionals
- The body of philosophy indicating the ways that engineers should conduct themselves in their professional capacity
- The study of moral issues and decisions confronting individuals and organizations engaged in engineering.
- The Study of related questions about moral ideals, character, policies and relationship of people and corporations involved in technological activity.

## Two Dimensions of Ethics in Engineering

Ethics is part of engineering for two main reasons.

1. Engineers need to be **socially responsible** when building products and processes for society.

2. Social responsibility requires **professional responsibility**.

# Some Engineering Disasters

## The nuclear plant explosion in Chernobyl

*1986*

- A destructive steam explosion of the core reactor
- Huge amount of radioactive contamination into the air for nine days
- Fire cleaning operation killed hundreds of people
- Between 30.000 – 60.000 cancer deaths due to the accident

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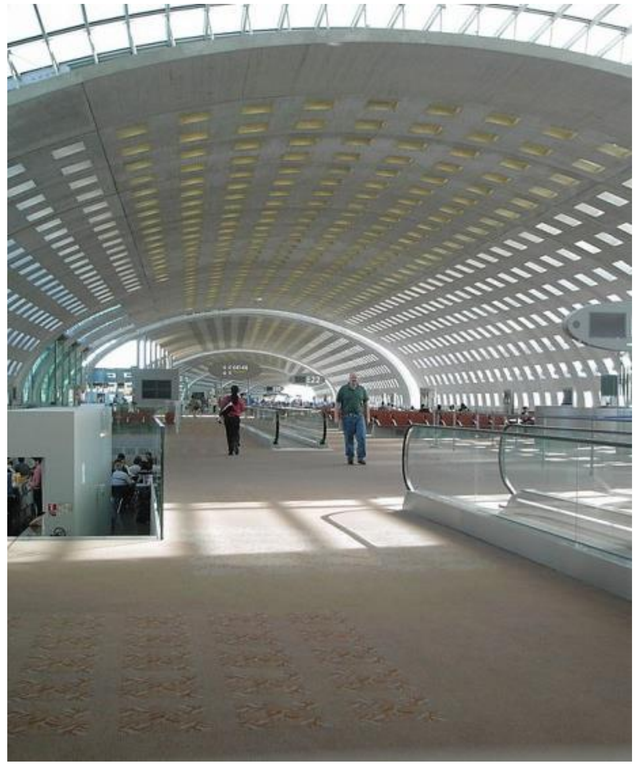
# Some Engineering Disasters



## The collapse of Charles De Gaulle Airport terminal

*2004*

- A huge portion of the roof of terminal 2E Collapsed
- Four people were killed and three severe injuries
- The structure had failed due to a lake detailed of feasibility analysis
- The structure were rebuilt with a metal framework and reopened in 2008

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# Code of Ethics

## HOLD SAFETY PARAMOUNT
The chef of an engineer concern needs to be the health and welfare of the public

## SERVICE WITH COMPETANCE
You should only work in areas that you are skilled in

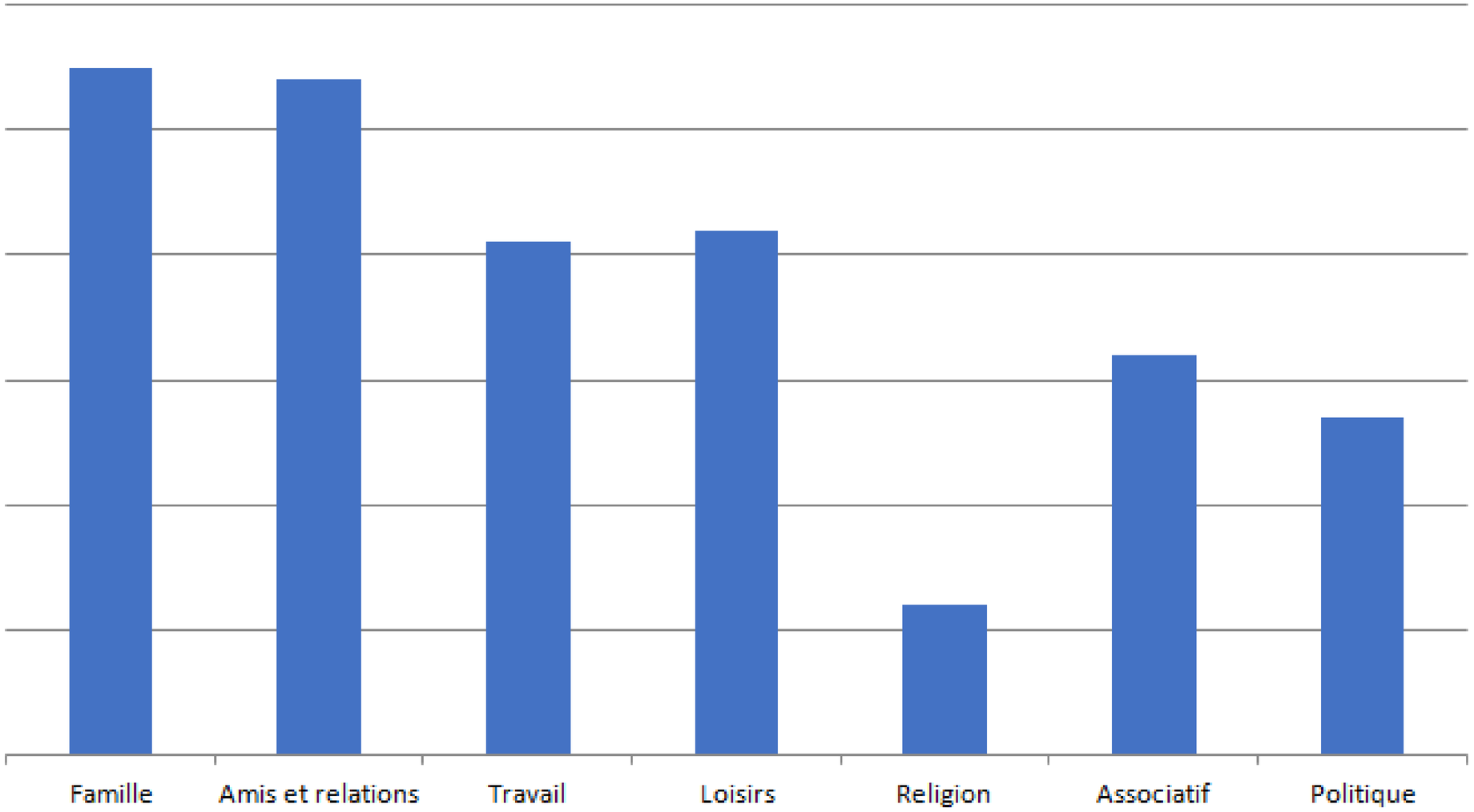
## ISSUE TRUE STATEMEN
Engineer doesn't have to lie

## ACT AS A FAITHFUL AGENT
Faithful for each of you or client and avoid the conflicts of interests

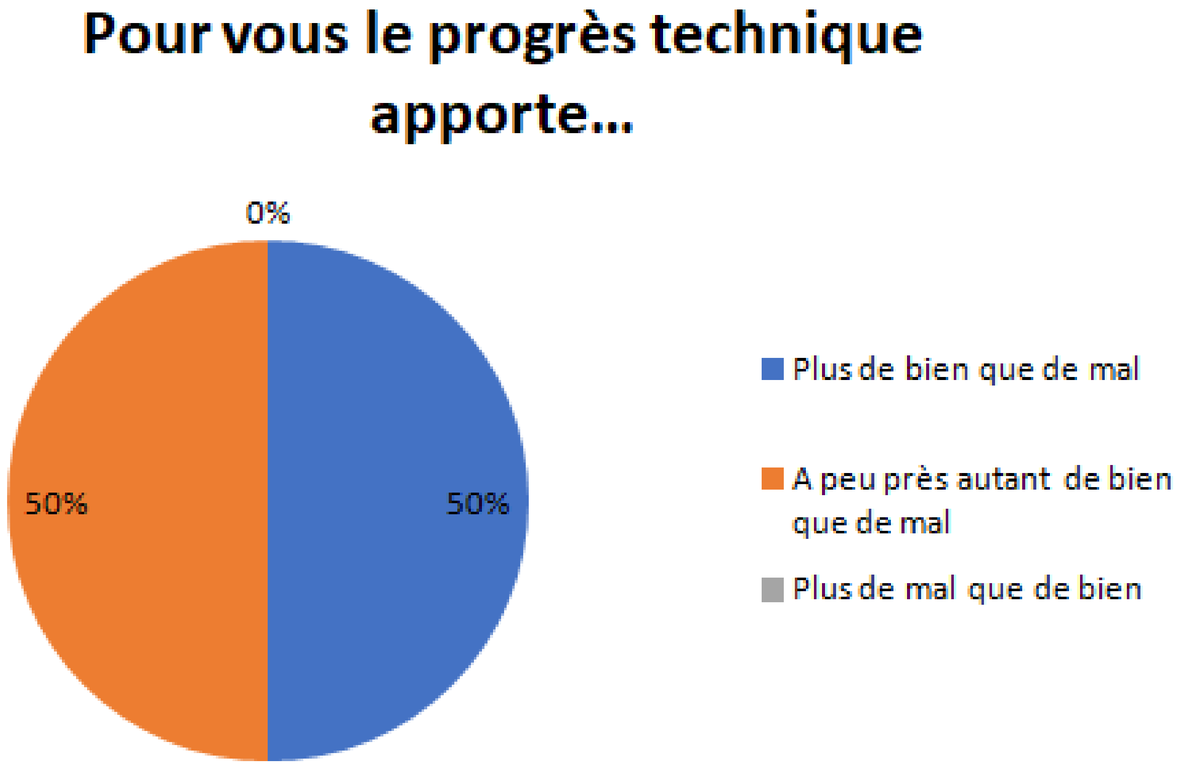
## UPHOLD PROFESSIONAL HONOR
Zero tolerance policy for bribery, fraud or any sort of corruption

## CONTINUE PROFESSIONAL DEVELOPMENT
Development is one of the most important for the long-term growth of the society and the engineering field

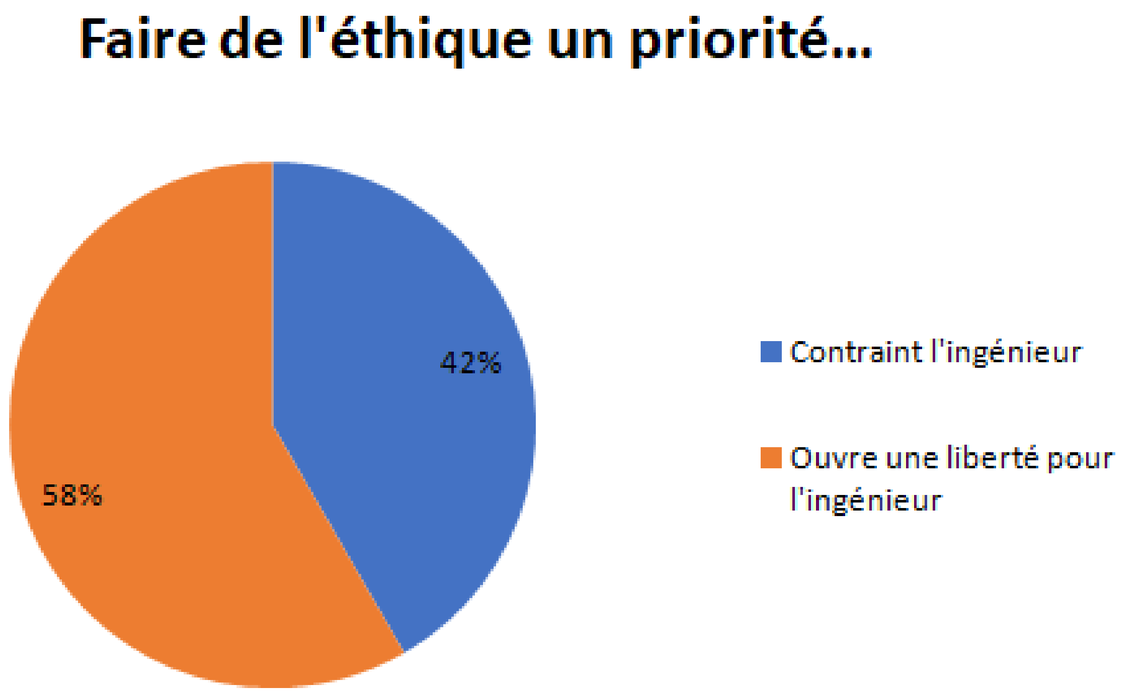
# Survey Results: matters of interest



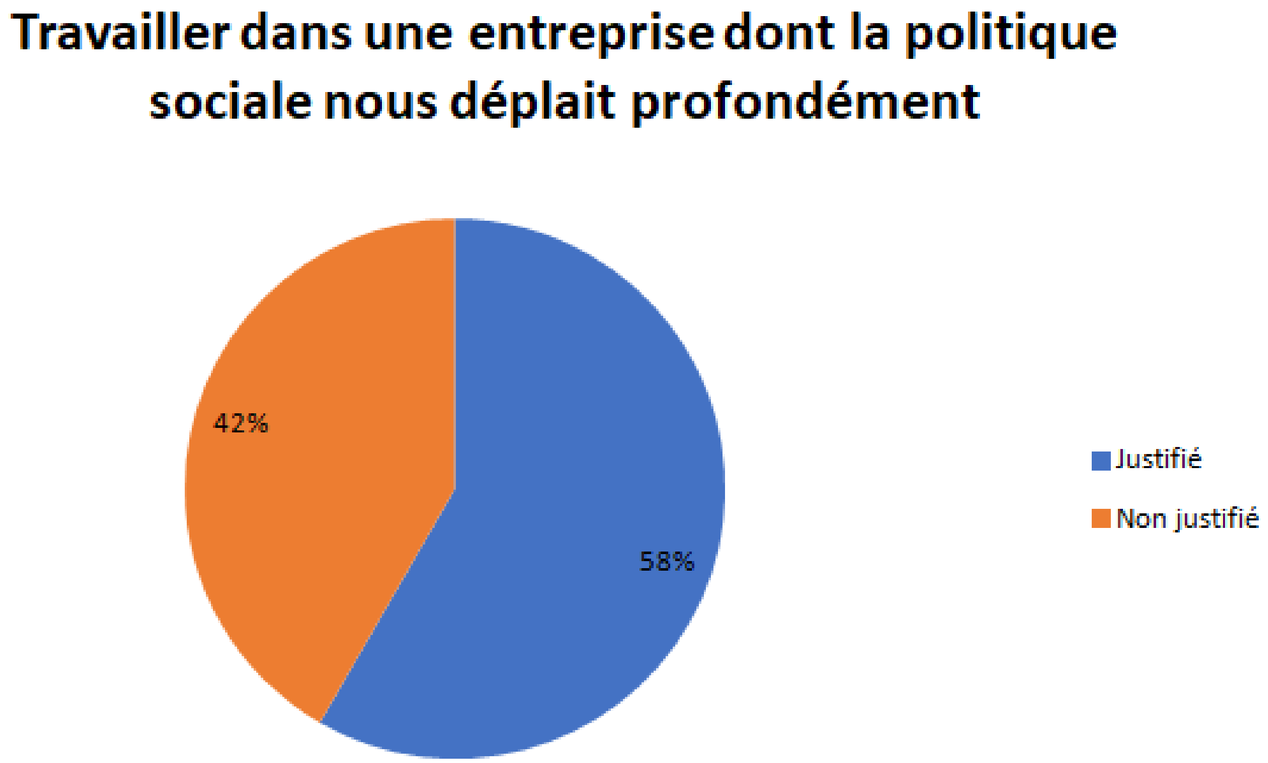
# Survey Results: technical progress



# Survey Results: ethics as a priority



# Survey Results: company’s ethics



# Survey Results: donations for the environment