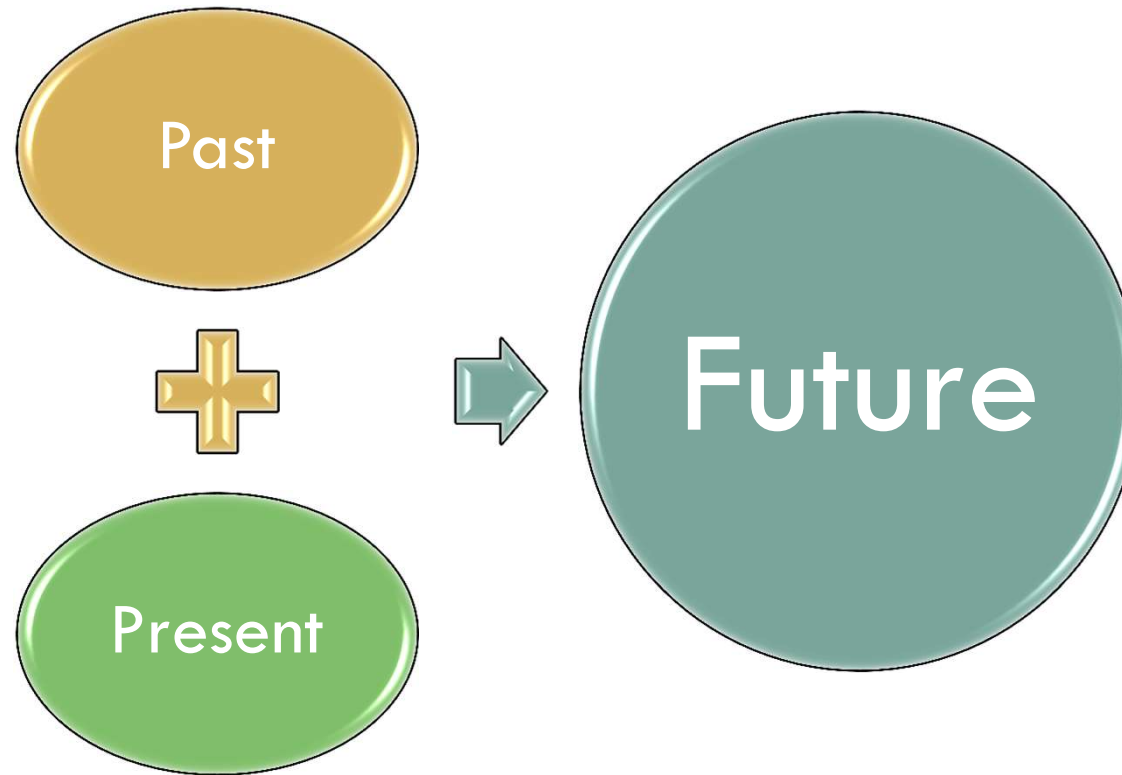


# CHALLENGES IN THE FUTURE FOR CIVIL ENGINEERING

21 September 2014

# Role of Civil Engineering



***Built upon the wondrous achievement of the past and help solve the challenges of the future***

# The vision for Civil Engineer in 2025

## ASCE

Entrusted by society to create a sustainable world and enhance the global quality of life, civil engineers serve competently, collaboratively, and ethically as masters:

- Planners, designers, constructors, and operators of society's economic and social engine -- the built environment;
- Stewards of the natural environment and its resources;
- Innovators and integrators of ideas and technology across the public, private, and academic sectors;
- Managers of risk and uncertainty caused by natural events, accidents, and other threats; and
- Leaders in discussion and decisions shaping public environmental and infrastructure policy

# Engineers' Creed

## National Society of Professional Engineer

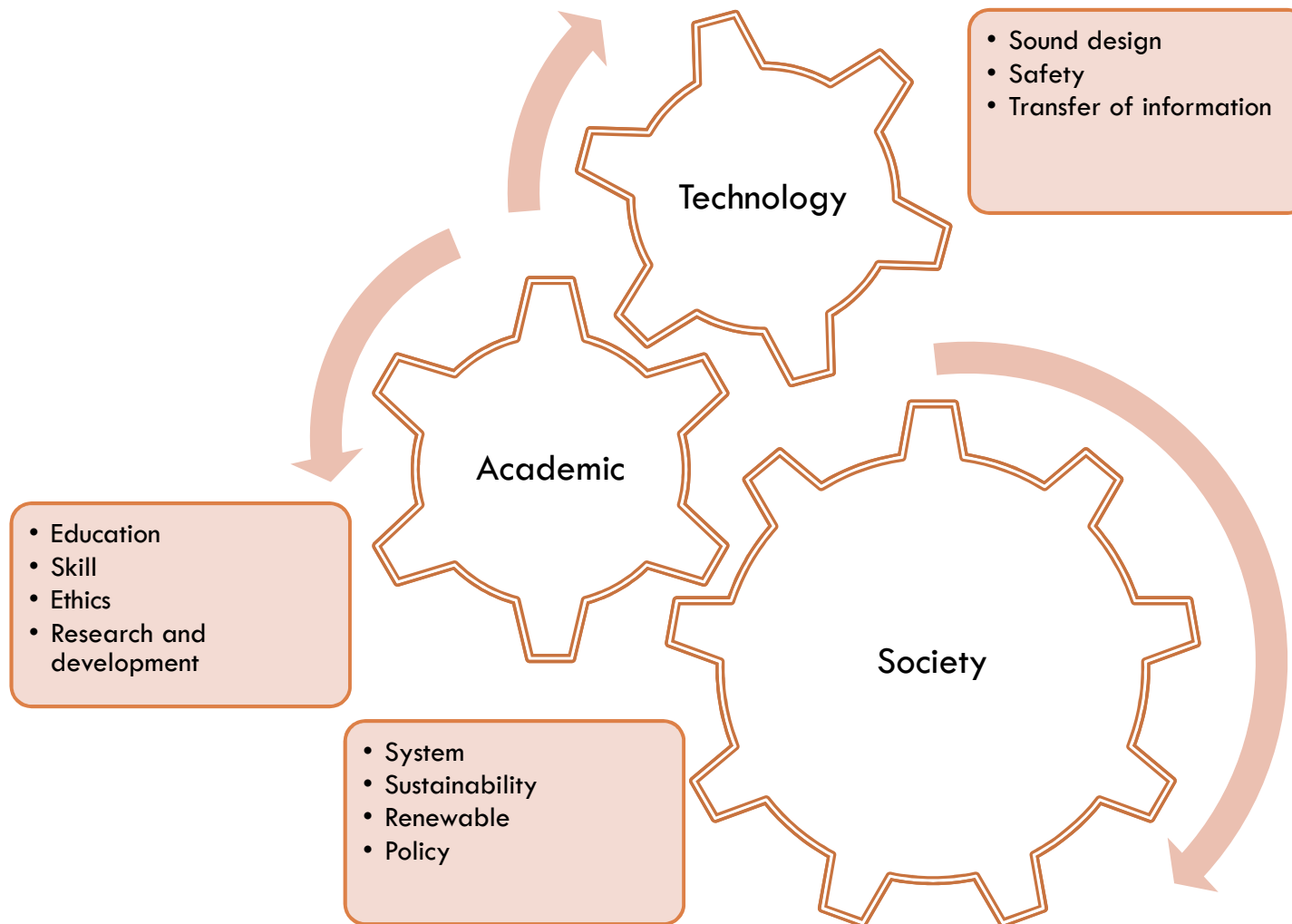
As a Professional Engineer, I dedicate my professional knowledge and skill to the advancement and betterment of human welfare.

I pledge:

- To give the utmost of performance;
- To participate in none but honest enterprise;
- To live and work according to the laws of man and the highest standards of professional conduct;
- To place service before profit, the honor and standing of the profession before personal advantage, and the public welfare above all other considerations.

In humility and with need for Divine Guidance, I make this pledge.

# Challenges Area



# Academic Challenges



## □ Education

- Understanding of the subject
- Understanding of the society and the norm

## □ Skill

- Application of the knowledge
- Managing task
- Leading
- Communicating
- Being visionary

## □ Ethics

- Responsibility to self
- Responsibility to the authority
- Responsibility to the society

## □ Research and Development

- Material
- Method
- Tools
- Equipment
- Approach

# Technological Challenges



- Evaluation for comprehensive design
  
- Transfer of information
  - Availability of information
  - Access of information
  - Use of information
- Safety
  
- Dependency

# Society Challenges



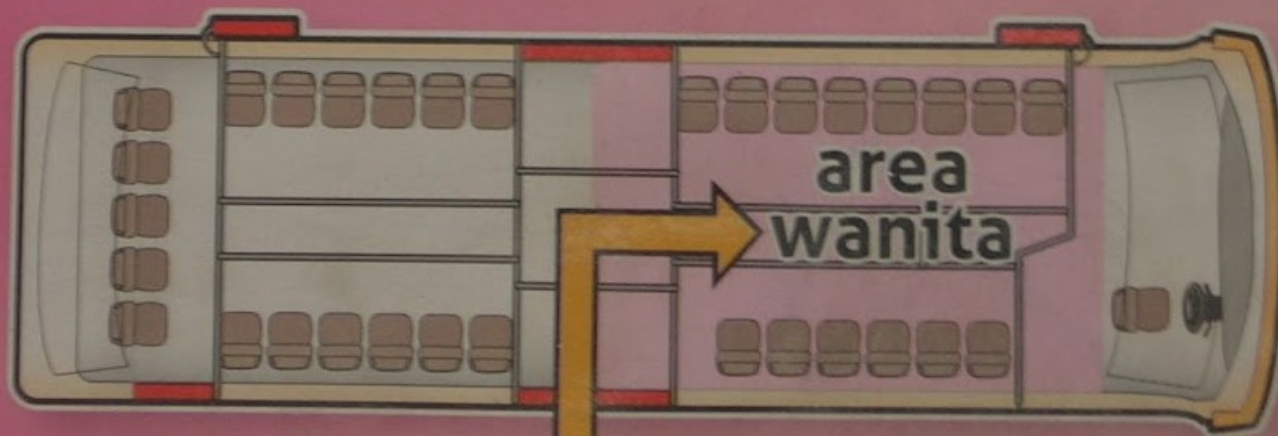
## System

- Implementation
- Integration
- Development
- Expansion
- Maintenance
- Functionality









Halte Transjakarta

# Challenges related to the MRT Jakarta



- Target market
- Public education
- Competing mode of transport
- Service
  - ▣ Safe
  - ▣ Convenient
  - ▣ Comfortable
  - ▣ Affordable
- Repair and maintenance
- Emergency plan