

# SCIENCE FORESIGHT

PERSPECTIVES FOR 2017-2020



## PLANETARY PRESSURES

### GLOBAL HEALTH VIEW

- Climate Change
- Ability to sustain natural resources (water, air, minerals)
- Population growth
- Waste management

### HESI VIEW

- Climate change impact on human and env. health
- Environmental exposures and human/eco health outcomes
- Chemical substitutions and sustainability

## TECHNOLOGY



### GLOBAL HEALTH VIEW

- High density data
- Sensory technologies
- Regenerative medicine
- Genome editing
- Personal tracking
- 3D Printing
- Robotics
- Nanotech

### HESI VIEW

- Cell, immuno, and gene therapy
- Personal monitoring data & role in health, disease, exposure
- Organ chips
- 3D printing
- Computational modeling



## PRACTICE OF SCIENCE

### GLOBAL HEALTH VIEW

- New disciplines merging with biology
- Interdisciplinary science

### HESI VIEW

- Epidemiology data & use
- 'Alternative' testing methods, approvals
- Data sharing and data access
- Predictive signatures & epigenetics
- Integrating exposure into risk assessment

## POPULATION & INDIVIDUAL SENSITIVITY



### GLOBAL HEALTH VIEW

- Increased aging population
- Microbial resistance & disease
- Rates of NCDs in population
- Novel disease pathogens

### HESI VIEW

- Aging related disorders
- Neurological illness/safety
- Drug-drug interactions
- Safety of novel cancer therapies
- Impact of combined exposure



## SOCIETAL INFLUENCES

### GLOBAL HEALTH VIEW

- Science in period of political, economic Instability
- Public skepticism of science
- Culture of open access

### HESI VIEW

- Global regulatory standards
- Role of social media in information collection and exchange
- Public perception of risk v hazard
- Reduced research \$\$\$