



IEEE Future Directions

# Understanding Technology Policy and Ethics in Technology

- **The Development of Blockchain Technologies**  
(Science and Technology Studies Perspective)

*Tim Kostyk, Program Director IEEE Future Directions*

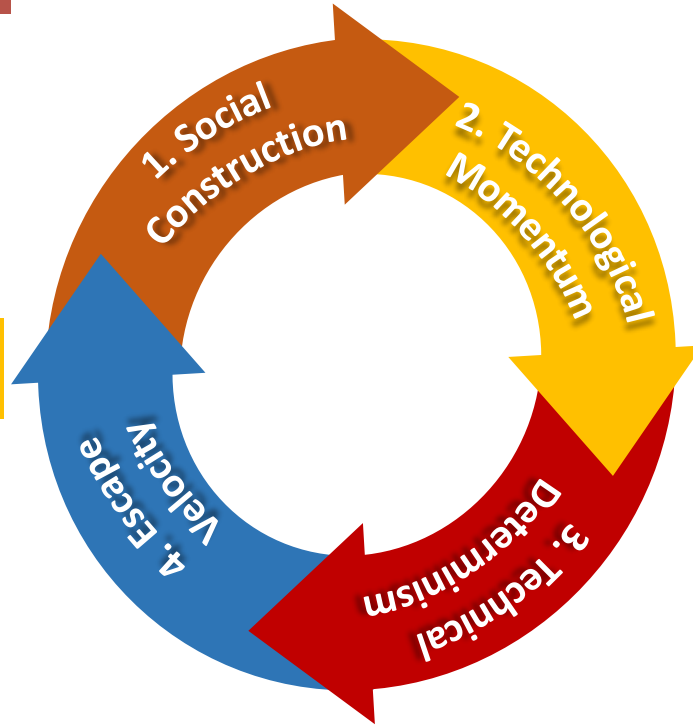
# TECHNOLOGY & SOCIETY

## 1. Social Construction

- Real or perceived social needs drives Technology's development
- A threat to Society drives technology's development
- A common goal of Society stakeholder holder groups work in unison to foster technology's development

## 2. Tech Momentum

- Technology becomes embedded in society through its use
- Financial markets are heavily invested in technology
- **Policies, Regulations and Standards Emerge**
- Populations are employed by related technology services or goods. Jobs are lost to new technology



## 3. Tech Determinism

- Society becomes dependent on technology
- Technology creates Winners and Losers
- Economies become dependent on Technology
- Governments align, Lobbyists and advocacy groups form to protect technology

## 4. Escape Velocity

- Alternative Technologies emerge
- Investment slows or stops
- **Ethical Dilemmas become important**
- **Social threats emerge from the technology, advocacy groups become a viable threat against the Technology**
- Government, NGOs & other Stakeholders form alliances against technology use

# 1. SOCIAL CONSTRUCTION (BLOCKCHAIN)

- 1) Diminished Faith in established Institutions (Financial Markets, Government, Press, Monopoly Service Providers (Social Needs)
- 2) Near collapse of World Economy (Threat)
- 3) Cyberwarfare (Russian incursions into US and European elections) (Threat)
- 4) Eliminate unnecessary 3<sup>rd</sup> Parties (Social Need)
- 5) Insuring Trust (Social Need)
- 6) Transparency (Social Need)

# TECHNOLOGY POLICY AND ETHICS IN TECHNOLOGY (BLOCKCHAIN)

## TECHNOLOGY POLICY DEFINITION & ELEMENTS

- Method by which policy makers seek to maximize advantages of technology and minimize negative impacts of technologies based on the demands of their constituents.
- Constituents are: General Public, NGOs, Industry, Academia or a combination of each. Often policy makers need to sub optimize one constituent group in favor of another
- Technology policies can be Global, Regional or Local. They can be mandatory or non mandatory, they can include and utilize: Rules, Laws, Regulations, Strategic Plans, Agreements, Compacts, Best Practices, or Standards.
- Technology policies can be formed or applied during any phase of development or use. Quite often new Tech Policies can cause technologists or engineers to redesign technologies or systems while they are being used.

## TECHNOLOGY POLICY DEFINITION & ELEMENTS CONTINUED

- Policies form the **intersection or inflection point from which technologists and engineers interact** with policy makers who can either promote, encumber, regulate, or prohibit technologies based upon the interests or economics of constituents
- The inputs of **policies are as diverse as the people the policies support** and the organizations they serve; and can include: Social, local, regional and global Economics, Cultural Norms, Religious Beliefs, World or Historical Viewpoints, Environmental or Natural threats or opportunities.
- **Technology Policies can cause major impacts** to: the global environment, the economic well-being of nation states, the ability to wage war, extend life, or create jobs; they can also shape the future or cause the decline of a civilization

## ETHICS IN TECHNOLOGY DEFINED

- Ethics in Technology is based upon the reconciling of three Ethical Theories:
  - ❖ Utilitarianism (Bentham)-Focused on consequences and the **greatest good for greatest amount of people**
  - ❖ Duty Ethics sometimes referred to as deontological ethics (Kant)- Focused on following the rules regardless of the consequences. **Individuals and organizations have the obligation to follow society's rules**
  - ❖ Virtue Ethics (Plato and Aristotle) Focused on what is **the right thing to do** based upon universally held ethics such as honesty, generosity, golden rule etc.

## ETHICS IN TECHNOLOGY DEFINED

- Ethics in Technology provides a **conceptual grounding to clarify the role of technology to those affected by it** and to help guide ethical problem solving and decision making in areas of activity that rely on technology.
- Ethics in Technology **provides insights on ethical aspects of technological systems and practices by examining technology-related social policies and interventions,** and by providing guidelines for how to ethically use new advancements in technology
- Ethics in Technology views technology and ethics as socially embedded enterprises and focuses on discovering the ethical use of technology, **protecting against the misuse of technology, and devising common principles to guide new advances in technological development and application to benefit society.**



# POLICY AND ETHICAL IMPLICATION OF BLOCKCHAIN TECHNOLOGIES

- Privacy
- Equity
- Access
- Security
- Safety

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