

TECHNOLOGICAL STEWARDSHIP

ETHICAL & SUSTAINABLE DESIGN

Defining Technological Stewardship

"A professional identity, orientation and practice. As tech stewards, we continuously discuss, refine and imagine new ways to shape technology for the benefit of all"

- MaRS Discovery District, 2024

Tech Stewardship Principles

- Seek Purpose:** direct technological development to maximize positive outcomes for all
- Take Responsibility:** consider, anticipate and manage the complex impacts of technology across the entire life cycle
- Expand Involvement:** integrate a broad range of non-technical experts & ideas into tech. development
- Widen Approaches:** explore alternative ways to solve problems
- Advance Understanding:** foster dialogue about tech. and technological stewardship
- Realize Diversity:** ensure technological development contributes to creating equity
- Deliberate Values:** consider underlying values and make intentional decisions
- Seek Regeneration:** proceed in a manner that helps enhance the health of the systems with which you engage

Figure 2 TSP from Engineering Change Lab

The Engineering Change Lab

- ☐ set "Tech Stewardship Principles" (see Figure 1)
- ☐ focused on the consideration of social, ethical and environmental impacts of design work
- ☐ promoting the continuous improvement and consideration of designs.
- ☐ encouraging alignment between personal values, and organizational and societal needs



Constant review of use of technology, ensuring impact on public safety, the environment and society with the intention of improvement and improved protection by design

Ethics in Design

"...those of us involved in the creation and application of technology need to consider the social, ethical and environmental impacts of our work."

- TechStewardship, 2024

Regulatory Ethics

- ☐ requirements by professional regulators (aka licensing body) of registrants
- ☐ profession-based code of ethics
- ☐ legal ramifications for non-compliance
- ☐ legally defensible guidelines and policies
- ☐ aligns with legislation

Organizational Ethics

- ☐ organizational code of ethics to cover gaps for non-professional workers
- ☐ non-compliance becomes insubordination, a legally defensible cause for dismissal

Academic Ethics

- ☐ academic code of ethics focusing on academic integrity*
- ☐ relies on institutionally demonstrated ethics
- ☐ addresses:
 - ☐ plagiarism
 - ☐ student conduct
 - ☐ classroom behaviour
 - ☐ complaint processes

* see infographic dedicated to Academic Integrity

Technological Stewardship by Design



Fostering a Culture of Tech Stewardship

- ☐ promoting discussions and consideration of potential unintended consequences and/or unethical applications of technology
- ☐ actively mitigating potential negative effects through design
- ☐ activism, such as the "Tech for Good" movement
- ☐ ensuring current knowledge-base of employees through educational requirements

Recommendations to add to the list?
Let us know at the address below

For more information about technological stewardship, see <https://techstewardship.com/>, and <https://ieeeexplorer.ieee.org/stamp/stamp.jsp?is=6&number=9893502>; for Technological Stewardship culture development, see <https://ieeeexplorer.ieee.org/stamp/stamp.jsp?is=6&number=9527286>; for more on technological stewardship through organizational leadership, see <https://ieeeexplorer.ieee.org/stamp/stamp.jsp?is=6&number=9527286>.

This infographic was developed by Dr. Katharina Tarnai-Lokhorst, P.Eng., FEC, FGC (hon.). Those wishing to use this document are welcome to do so at no charge. If you pull content from this document, please acknowledge the author and use the same Creative Commons attribution. All images developed using the tools of Flaticon.com.

