



“Making Sense of Technological Complexity”  
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## Sustainable Innovation: Strategies

### ***Technological Change: What technology do we choose? When?***

Diffusion of innovations research, when applied to Sustainable Innovation, suggests that one to:

- Adopt for wide implementation technologies with a large relevant market
- Adopt technologies after they take-off in the market
- Look for established industry standards
- Wait for multiple vendors to compete on price
- Adopt technologies as they display a large and increasing growth rate
- Leave room for pilot projects to facilitate innovation (innovators and early adopters)

### ***Implementation: How do we integrate it into the classroom?***

Operations research, when applied to Sustainable Innovation, informs technology leaders to:

- Accept trade-offs along a possibilities frontier
- Spread resources across multiple strategies
- Design a cyclical implementation process
- Focus on strategies that expand the entire possibilities frontier

### ***Firefighting: How do we make it reliable?***

Risk assessment and failure analysis, when applied to Sustainable Innovation, argues for one to:

- Define performance as a range of probabilities
- Seek out and correct root causes of failure AND non-catastrophic faults
- Understand reliability as both a technical and human challenge
- Sacrifice performance for the sake of redundancy
- Eliminate single points of failure

### ***Lack of resources: How do we make it last?***

The economics of public goods, when applied to Sustainable Innovation, advises one to:

- Plan for depletion
- Deploy based on operating (not investment) costs
- Accept the responsibility for regulating consumption
- Use marketization to allocate resources more efficiently

### ***Complexity: How does it all fit together?***

Sustainable Innovation fundamentally advocates for shifting resources away from short term goals towards long term (sustainable) performance. It is innovation that meets the needs of the present without compromising the future.<sup>1</sup>

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<sup>1</sup> Brundtland, G. Our Common Future: The World Commission on Environment and Development, Oxford University Press, 1987.