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Sustainable Entrepreneurship and the Role of Technology

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The possibilities of politics are limited

(and this is partly true for well-established Manager)

- Gailmard and Patty (2012): politicians gain to improve their chances of re-selection in the next period. This can lead to policies that neglect the importance of investing in the future.
- O'Toole Jr., (2011): bureaucratic structures lead to a lack of innovation and slow progress on important issues.
- Gailmard and Patty (2012) : public sector managers are often more focused on avoiding failure, which can lead to a reluctance to pursue innovative policies that may involve risk.
- Moynihan (2013): a lack of competition can contribute to a lack of accountability and a lack of incentive to improve processes or outcomes.

Re-election oriented

High bureaucracy

Risk aversion

Lack of Competition

The entrepreneurial approach is completely opposite

- Wiklund (1998) : **Taking advantage of opportunity** by novel combinations of resources in ways which have impact on the market
- Stevenson and Jarillo (1990): “The process by which individuals pursue opportunities **without regard to the resources they currently control**”
- Zimmerer and Scarborough (2005): ...new businesses or combinations that arise in the **face of risk and uncertainty** for the purpose of achieving profit and growth.
- Schumpeter (1934): role of entrepreneurship in the economy as "**creative destruction**" – launching innovations that simultaneously destroy old industries.

Market Opportunities

Out of the Box Thinking

Facing Risk and Uncertainty

Innovation (Disruption)

Entrepreneurship is very well suited to meet the major challenges



Entrepreneurs operate **in a competitive market environment**, which can incentivize them to develop more sustainable products and services in line with market mechanism.



Entrepreneurs can be **more agile and adaptable**, which can be critical in responding to emerging sustainability challenges.



Entrepreneurs can **scale rapidly** and make an important contribution to sustainability due to appropriate funding possibilities



Entrepreneurs are known for their innovative ideas and solutions to problems. They are often at the forefront of **developing new technologies** that have a huge impact on sustainability in the long run.

Regarding sustainability technology is a double edged sword

On the one hand:

- Technology **waste** causes harm to the environment
- Huge need for **server capacity** for mining cryptocurrencies, NFTs
- **High energy consumption** due to cloud-based services and increased use of robots...

On the other hand technology helps us:

- to make **smart decisions** about how to use our resources
- to reduce **energy consumptions, pollutions, waste production**
- increase **recycling capacity...**

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Technology can be a main driver for sustainability

Renewable Energy



Enapter



Artificial Intelligence (AI)



Ento Labs



Circular economy



refurbed

3D Printing



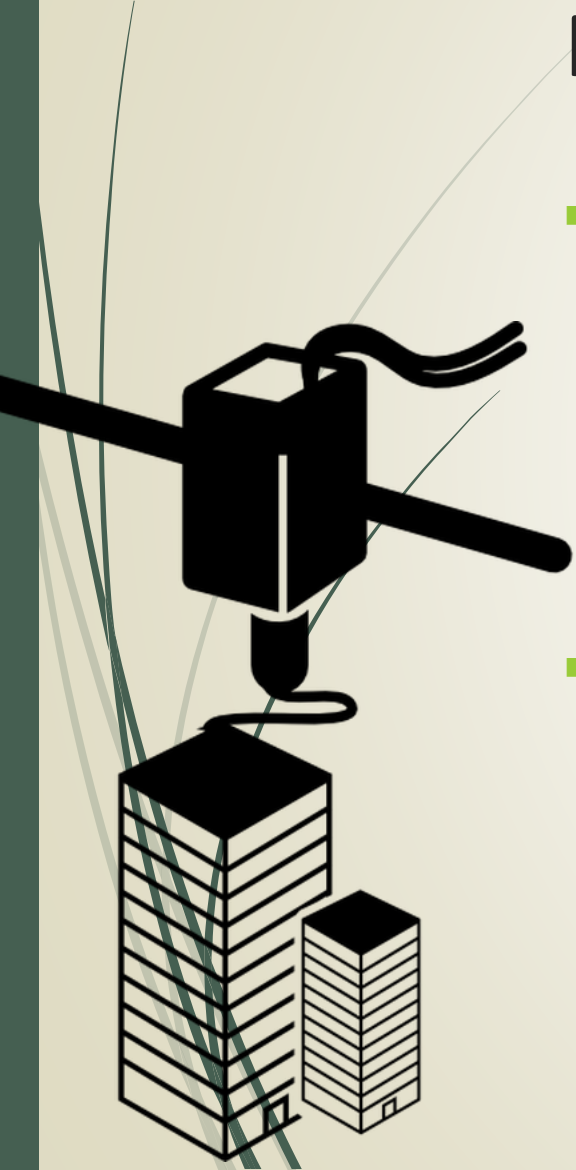
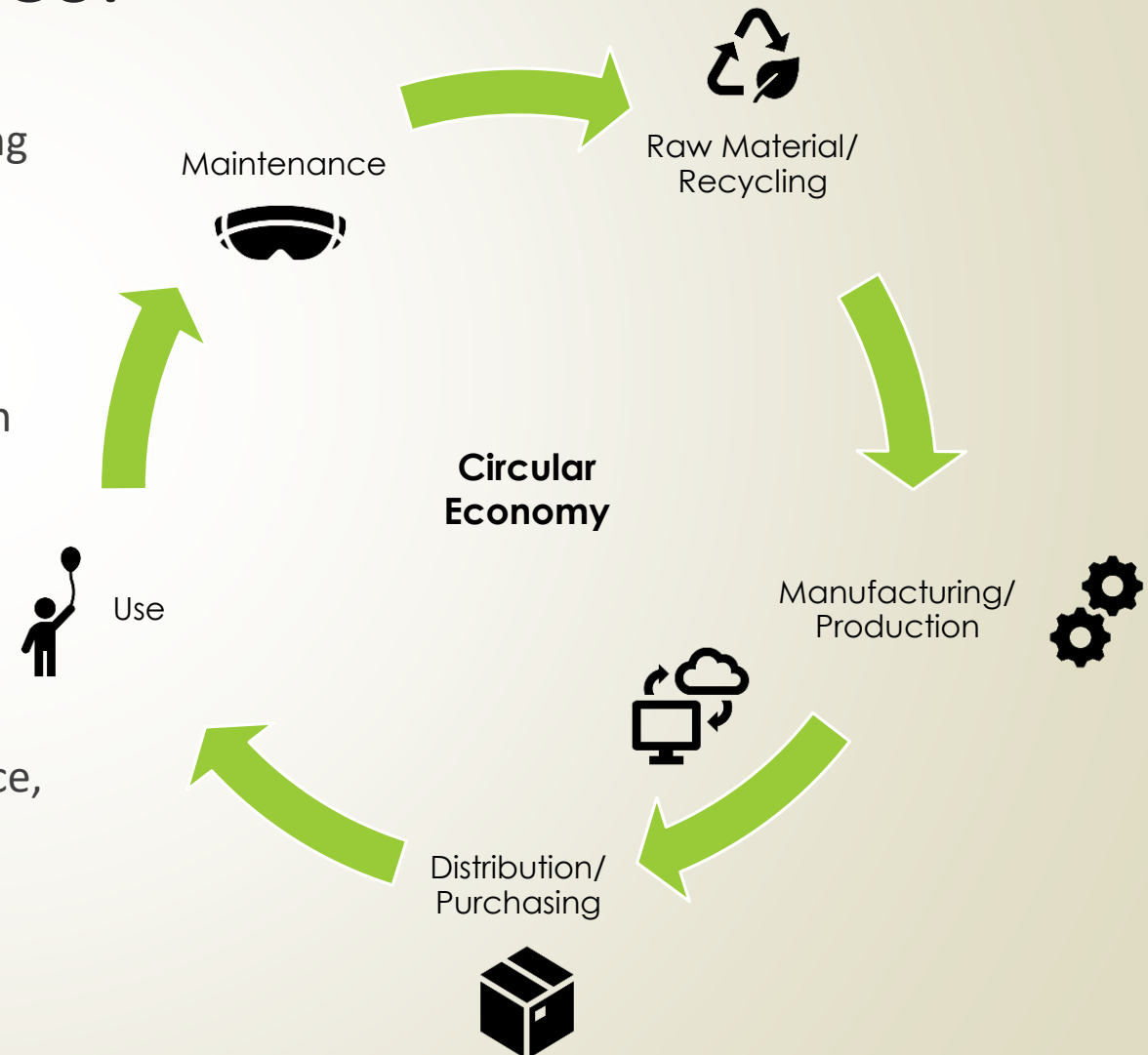
Co-design and green product development

traceless

Building a Sustainable Future with Additive Manufacturing and Co.

- Additive Manufacturing = 3D Printing
 - Manufacturing with different materials layer for layer
 - Combination of digital production with real production

- Life cycle with different technologies
 - Recycling, Cloud Distribution, Virtual/Augmented Maintenance, Green Energy, ...

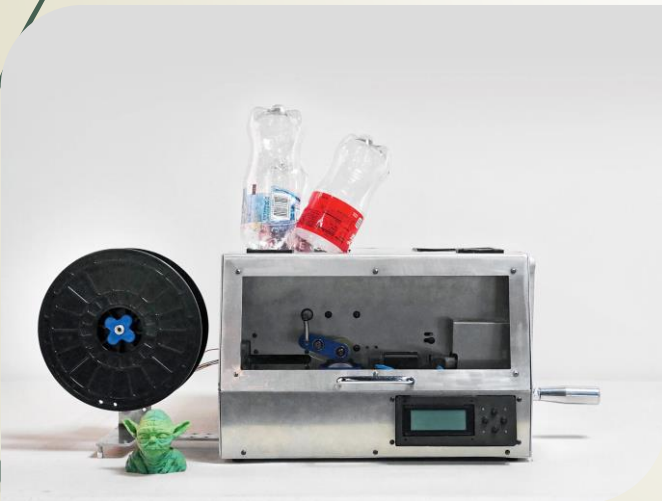


Why is Additive Manufacturing sustainable?

- ▶ Design freedom and lightweight structures
- ▶ Less material consumption
- ▶ Shorter development and less process steps
- ▶ Function integration
- ▶ Less assembly
- ▶ Decentralization and shorter transport routes
- ▶ Digital storage and production on demand
- ▶ Natural, compostable and recyclable materials
- ▶ Individuality

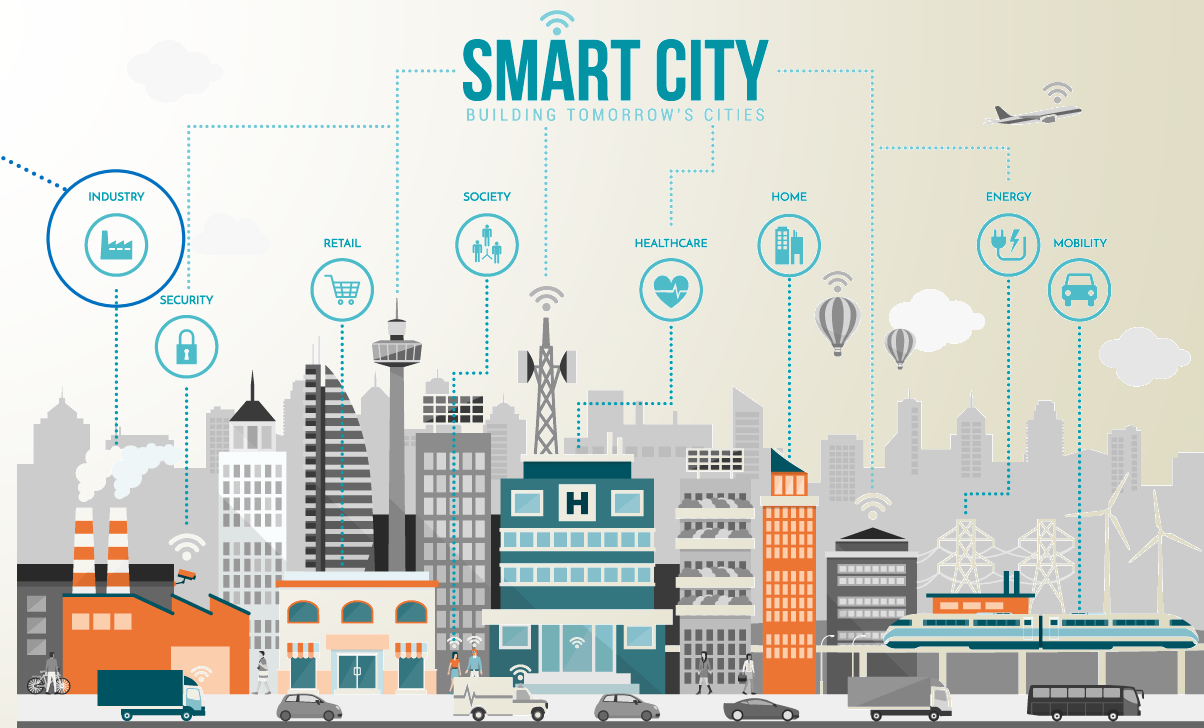
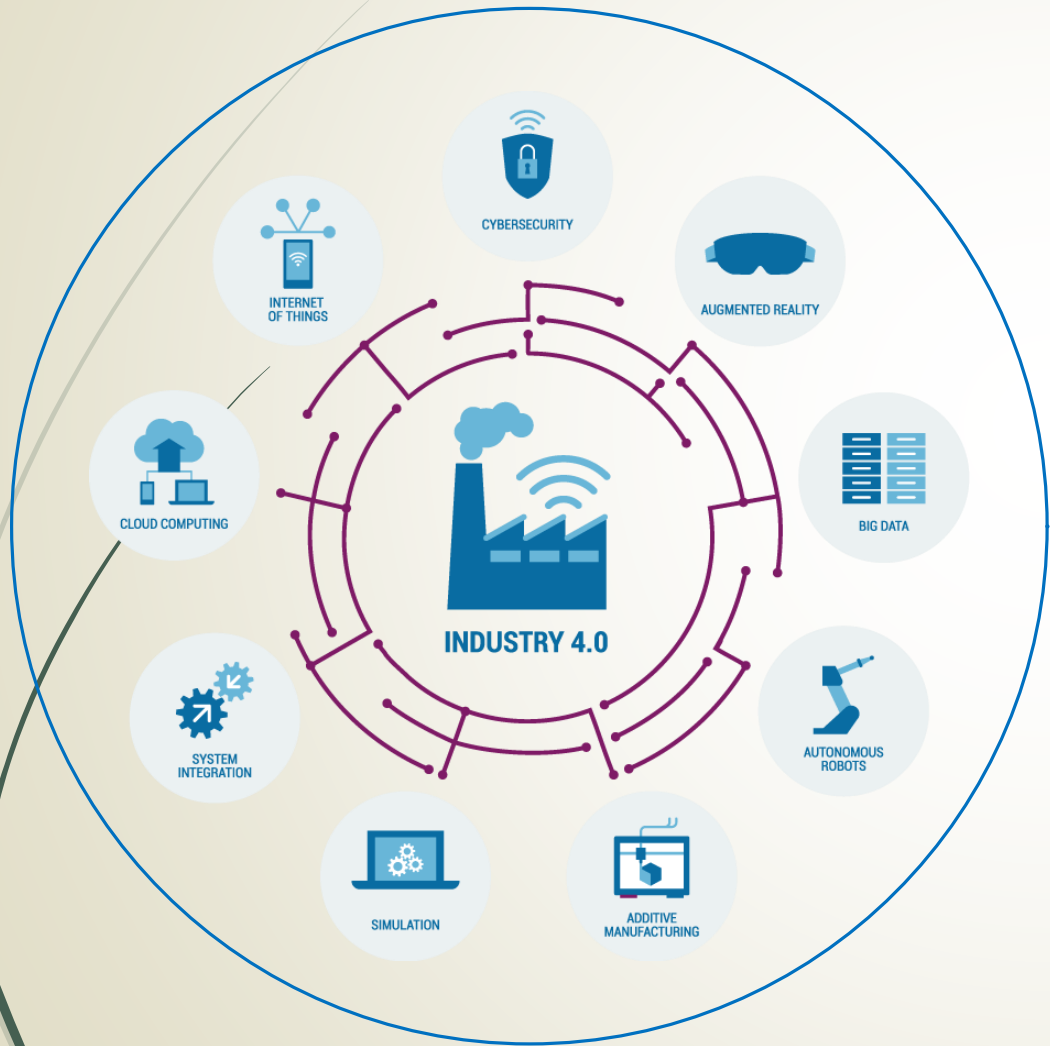


Sustainable Additive Manufacturing



How does Sustainable Technology works?

Together!



Challenges of technology driven sustainable Entrepreneurship

1. Sustainable technologies can be **complex** and **resource-intensive** with a need for specific knowledge
2. **Regulations** can limit the growth of sustainable technologies, favoring traditional energy sources over renewable ones.
3. Sustainable Technologies may face challenges in securing **funding** from investors who prioritize financial returns over social and environmental impact. (“Impact investing”)
4. Measuring the social and environmental **impact** of sustainable technologies can be difficult.

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