

# Additive Manufacturing as a Disruptive Technology

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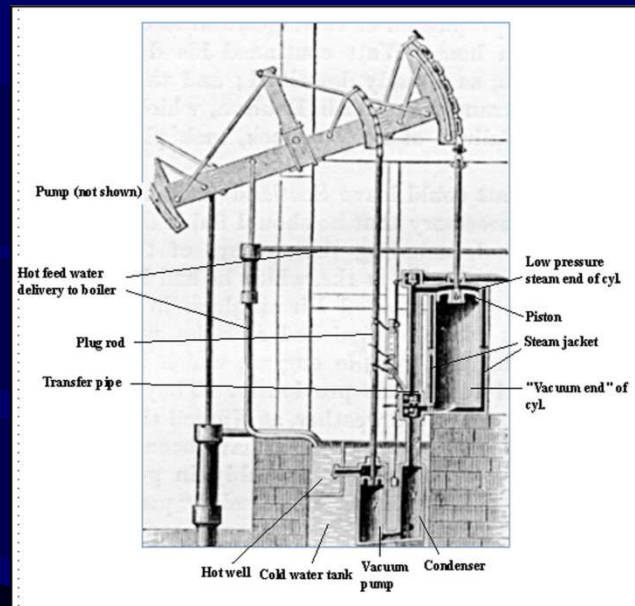
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# Context: Macro forces

- the rise of the importance of knowledge and other intangible assets, not just technology
- the fusion of manufacturing and services and the resulting changes in economic structure
- change in the innovation model to bottom up
- Globalization 4.0

# What is a disruptive technology?



Historical example: the industrial age boom just before the civil war through the turn of 20th Century

## The Railroad Age

The economic boom came only in part from the massive building (and overbuilding) of the railroads. More important is how the railroads changed other parts of the economy:

- opened up new markets
- increased machine-based manufacturing
- created new managerial processes, including governmental processes

# Characteristics of a disruptive technology

Directly allows new activities, not just better way of doing old activities

Spillovers create new activities

# AM as a disruptive technology

Started as rapid prototyping

Then manufacture existing objects

Now new activities:

- New shapes not possible before
- New use of materials

# Spillovers and macro forces

- the rise of the importance of knowledge and other intangible assets, not just technology
- the fusion of manufacturing and services and the resulting changes in economic structure
- change in the innovation model to bottom up
- Globalization 4.0

# Implications

Defense industrial base

Design of platforms and weapons  
systems

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