First, a Disclaimer

“Are these the shadows of the things that Will be, or are they the shadows of things that May be?”

» Ebenezer Scrooge, to the Third Spirit
Thought Experiment
What Would Happen if?

- Anyone could make things with virtually any functionality away from control?
What Would Happen if?
What Would Happen if?
What Would Happen if?
What Would Happen if?
Answer: Paradigm Shift

– Democratization of manufacturing
  ▪ No entry barriers
Answer: Paradigm Shift

– Democratization of manufacturing

- No entry barriers
- Lines blur
Answer: Paradigm Shift

Democratization of manufacturing

- No entry barriers
- Lines will blur
- Fundamentally different products
Answer: Paradigm Shift

Democratization of manufacturing

- No entry barriers
- Lines will blur
- Fundamentally different products
- BACK TO making, not buying
Answer: Paradigm Shift

As democratization increases . . .
Answer: Paradigm Shift

As democratization increases . . .

Away From Control
Away from Control

5 Is
Away from Control

5 Is

- Infringement/Illegal
Away from Control

5 Is

- Infringement/Illegal
- Identification
Away from Control

5 Is

- Infringement/Illegal
- Identification
- Impractical or Impossible
Away from Control

5 Is

- Infringement/Illegal
- Identification
- Impractical or Impossible
- Irrelevant
Away from Control

- Most tech/products
Away from Control

- Most tech/products
- All IP
Away from Control

- Most tech/products

- All IP

Gartner: $100B by 2018
Away from Control

- Most tech/products
- All IP
  
  Gartner: $100B by 2018
  
  - Everything else
The Dark Side
Guns

Scary

Cody Wilson

Zig Zag

Not Scary
Guns

Scary

Cody Wilson

Zig Zag

Not Scary

Solid Concepts
Gangs

- Raids
  - Manchester, UK
  - Brisbane, AU
  - Malaga, Spain
  - Sofia, Burgas, Silistra, Bulgaria
Thieves

- Fake ATM facades:
  - France
  - Australia
Thieves

Gripper brand

Network

24/7/365

Moscow, Jo-berg, London, NY

“Bare [sic] in mind we have the power to mass-produce these ATM skimmers with the latest technology. . . . We have all files needed and printing facilities in China. Also we have files to mass-produce MSRV electronics.”
Keys
Keys
Drugs

- Good guys:
  - Louisiana Tech U
  - India’s JRobotics Group
Drugs

- Good guys:
  - Louisiana Tech U
  - India’s JRobotics Group

- Bad guys:
  
  DIYers may render "controlled substances" an obsolete relic of the past

Mike Power, Drugs 2.0
Drugs

- Print at point of need, eliminating . . .
- Prescription printers gone bad
- Blueprints
Money
Counterfeits
Counterfeits
Counterfeits
Away from Control
Away from Control
Away from Control
The Really Dark Side
The Really Dark Side
The Really Dark Side

“3D printing could turn sanctions – which have been a crucial part of foreign policy for a generation or more – into an antiquated notion.”  

Peter Singer, New America warfare expert
Disarming Corruptor
Weapons?
Weapons?
Weapons?
Weapons?
The Dark Side
The Bright Side
The Bright Side: Micro

- No assembly required
The Bright Side: Micro

- No assembly required
- Design freedom
The Bright Side: Micro

- No assembly required
- Design freedom
- **Mass customization**
  - Complexity = free
  - Batches of one
The Bright Side: Micro

- No assembly required
- Design freedom
- Mass customization
  - Complexity = free
  - Batches of one
- Greener
The Bright Side: Macro

- Inconsistent situations?
  - Renaissance???
  - Repatriation of jobs
The Bright Side: **Macro**

- **But**
  - **Disruption/destruction**

3D PRINTING IS KILLING MANUFACTURING
AND IT'S LEGAL
The Bright Side: Macro

- But
  - Disruption/ destruction
  - Designs v. products
The Bright Side: Macro

- But
  - Disruption/destruction
  - Designs v. products
  - Regional
The Bright Side: Macro

- But
  - Disruption/destruction
  - Designs v. products
  - Regional
  - Distributed
The Bright Side: **Macro**

- **But**
  - Disruption/destruction
  - Designs v. products
  - Regional
  - Distributed

- **How can we have both?**
The Bright Side: Macro

- But
  - Disruption/destruction
  - Designs v. products
  - Regional
  - Distributed

- How can we have both?
Why the Experts Are Wrong
Why the Experts Are Wrong

– “Most 3DP sales will be industrial”
– “Most homes will not have 3DP anytime soon”
– “Home 3DP will be unsophisticated”
Why the Experts Are Wrong

- Not this one:

  “I think every home within 10 years, probably less than that, will have its own 3D printer, just as many homes now have a 2D or laser printer”

  Andy Bird, Chairman, Disney International
Why the Experts Are Wrong
Why the Experts Are Wrong

MINK

Disney:

PRINTEER
Why the Experts Are Wrong
Why the Experts Are Wrong
“We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten”

Bill Gates
BLAME
BLAME

KEEP CALM AND MAKE A PLAN
Thank you for your time!

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