



# **3D Printing and the Future (or Demise) of Intellectual Property**

John Hornick

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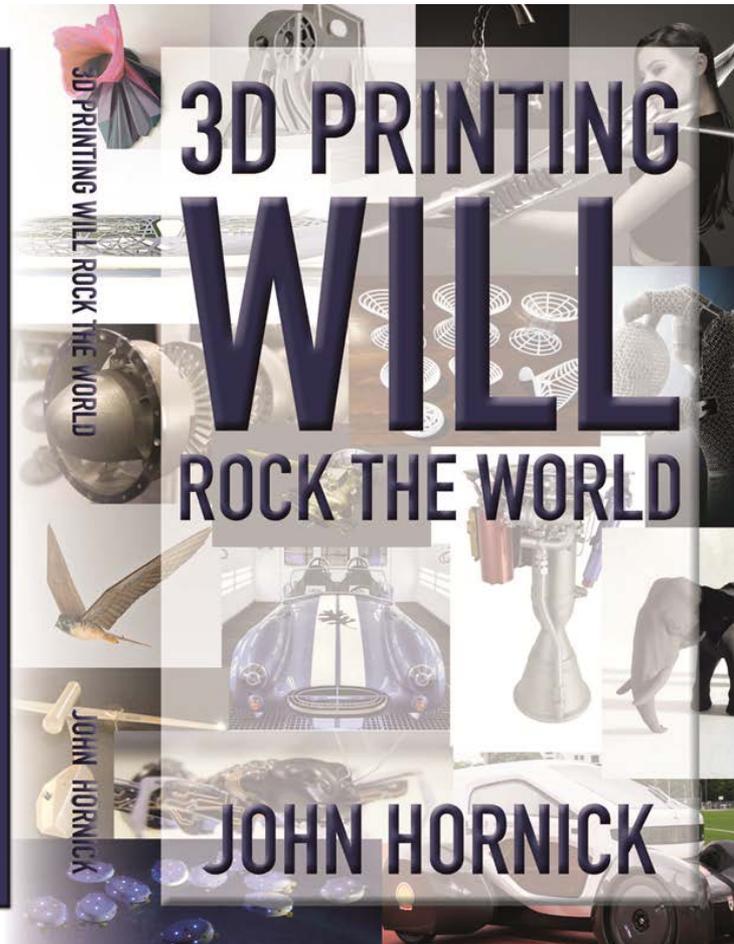
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# First, a Disclaimer

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“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

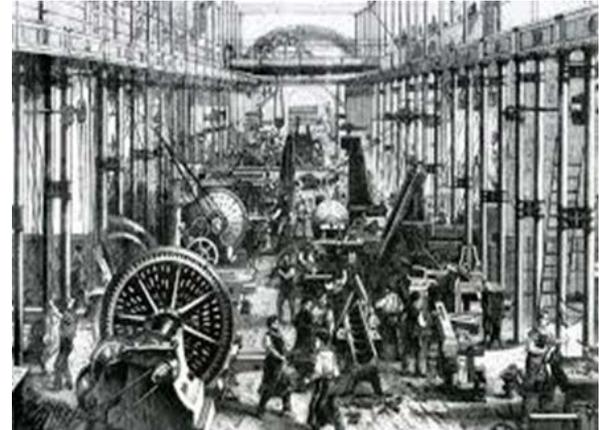




# Disruptive Game Changers

# Disruptive Game Changers

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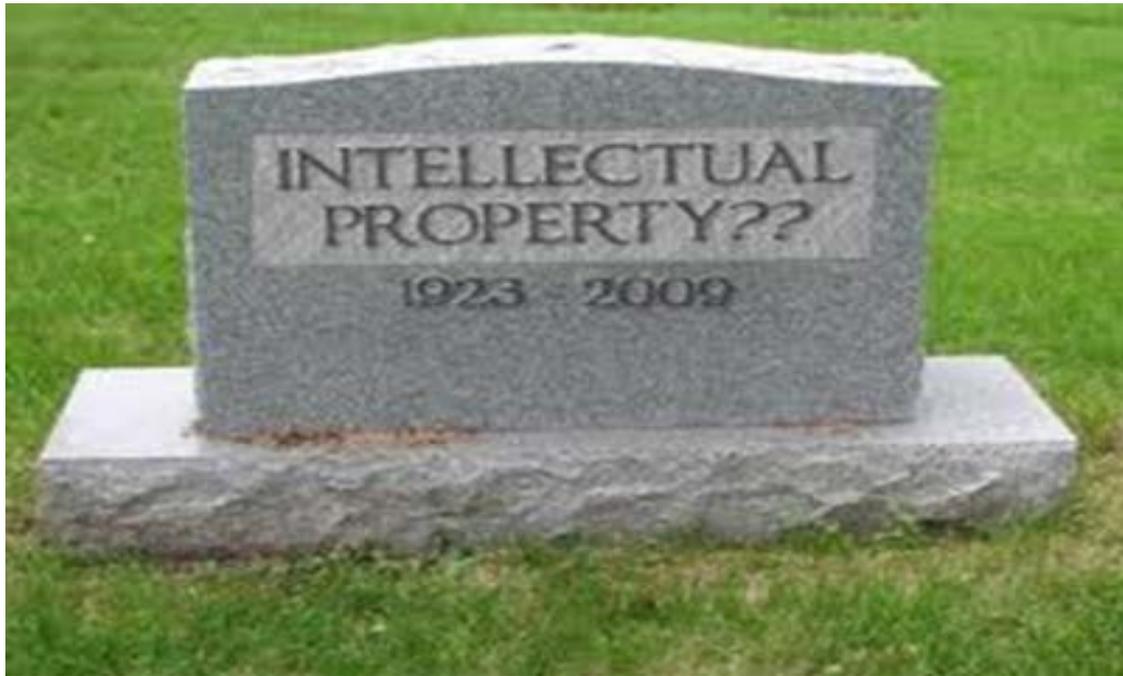


# Why the Future (or Demise) of IP?

# Three Reasons

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- **Democratization of manufacturing**

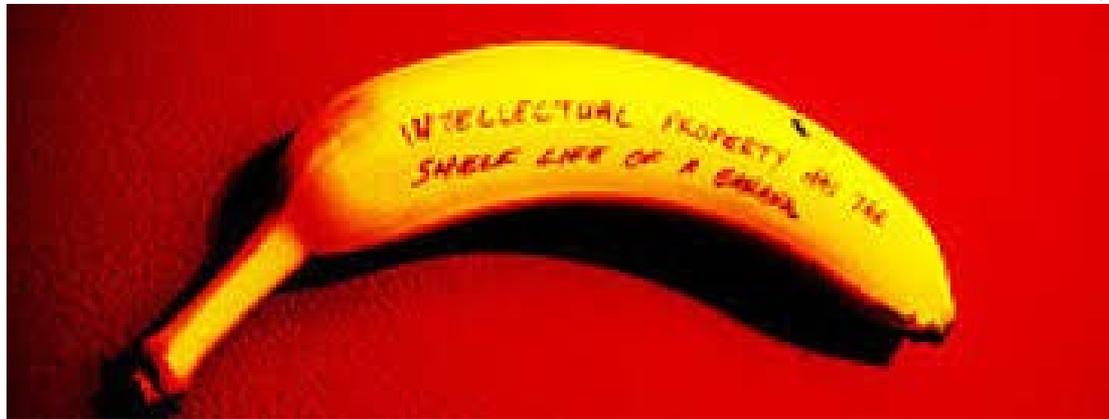


# Three Reasons

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- “There is a persistent widespread belief that intellectual property law (and patents in particular) encourage innovation. This is intuitive, however, the evidence to the contrary is now overwhelming and the unavoidable conclusion is that intellectual property actually stifles innovation.”

Prof. Joshua Pearce, Materials Science, Mich Tech



# Three Reasons

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\$170K+



7200

Hila & Ethan Klein

“In my and many others' opinion this is an attempt to step on freedom of speech via a broken copyright system and most people's confusion over Fair Use.”

Philip DeFranco

# Three Reasons

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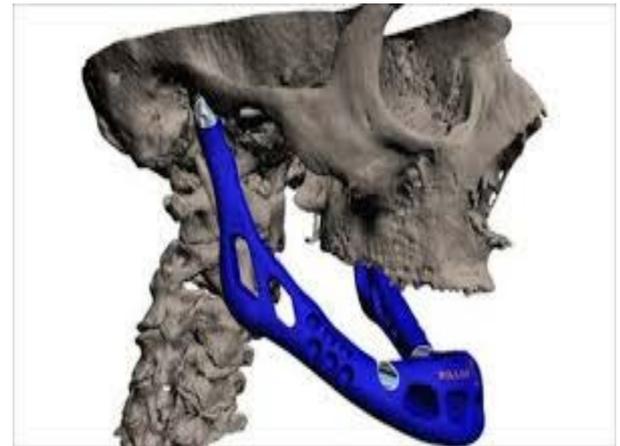
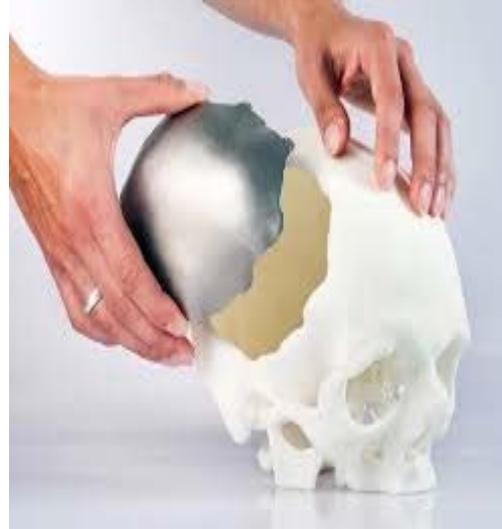
- **Away from Control**



# Why 3DP Is Rocking Manufacturing

# Rocking Manufacturing

- No assembly required
- Design freedom
- **Cost Neutral**
  - Complexity
  - Batches of one
  - **Customization**





# Paradigm Shift

# Paradigm Shift





# Consequences

# Consequences

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Lines blur

Business models evolve

Designs, not Products

Fundamentally different  
products



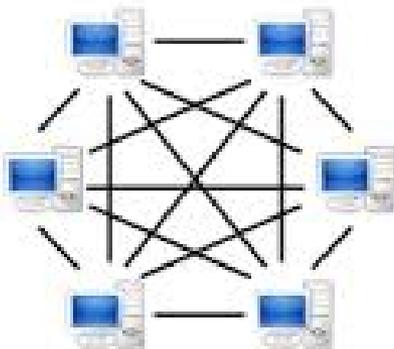
**BACK TO making, not buying**



**What Would Happen If . . .**

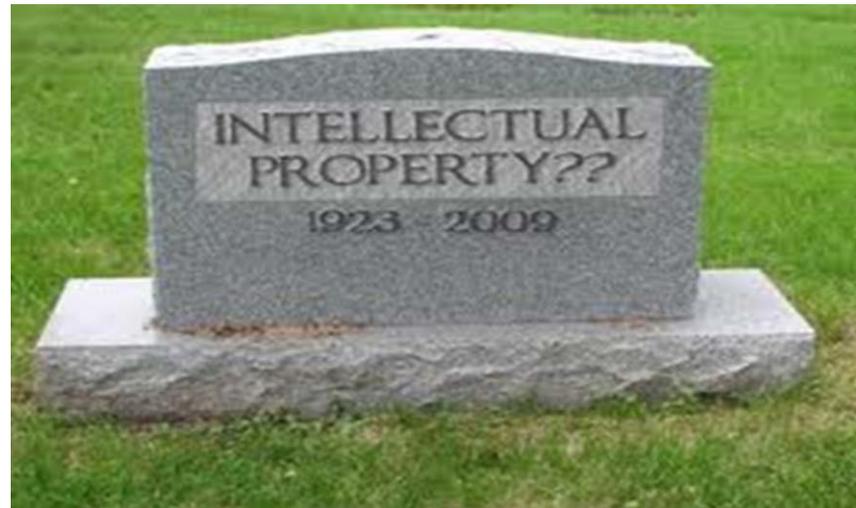
# What if . . .

Anyone could make anything,  
away from control?



# What if . . .

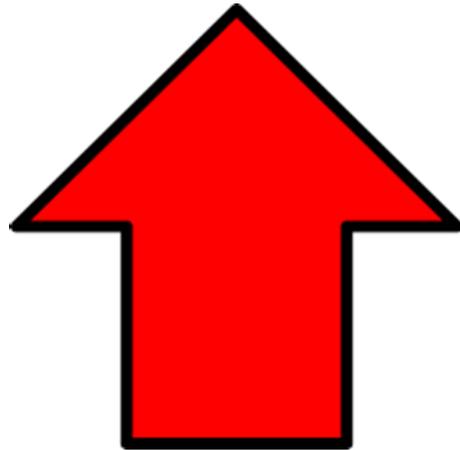
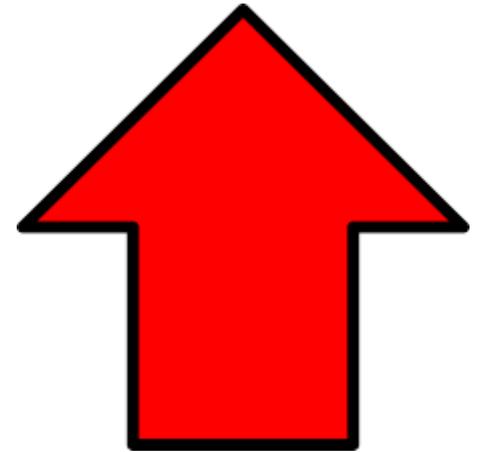
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What if . . .

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As democratization  
increases . . .

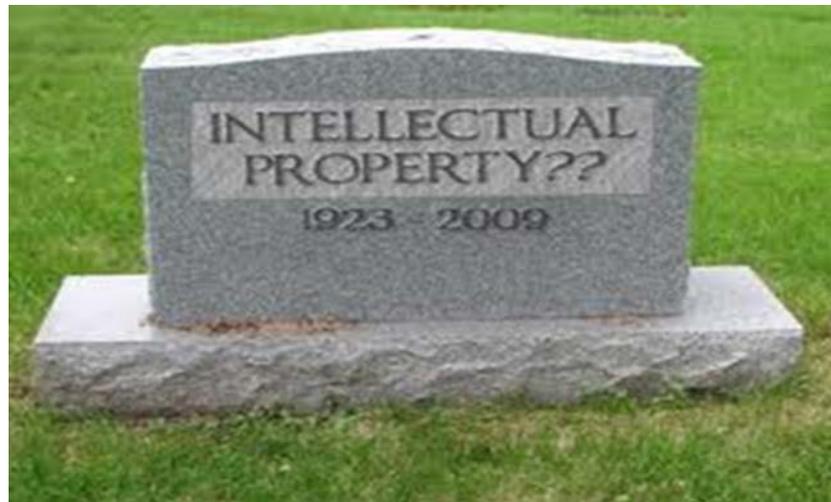


Away From Control

# What if . . .

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## IP increasingly irrelevant



## What if . . .

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- **Customization replaces IP**
- **IP for infrastructure**
- **Non-IP-based business models**





# 3DP Today

# 3DP Today

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Price Range: \$5K to \$2M



ASP: \$104K (+\$7K)

Source: Wohlers Report

**Industrial Base: ~105K (+13K)**

# 3DP in Aerospace

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**“This is the ultimate manufacturing method for us”**



**“This is the future of manufacturing”**

**LEAP**

**Alabama**

**Weight**



# 3DP in Aerospace

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MONASH University



# 3DP in Aerospace

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# 3DP in Healthcare



# 3DP is Rocking Healthcare





# Fundamentally Different Products

# Fundamentally Different Products

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# Rocking the IP World

# Rocking the IP World

- Principles
- Magnitude
  - All IP
  - Most products
  - Scale/targets
- Gartner: \$100B by 2018



# Rocking the IP World

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# Rocking the IP World

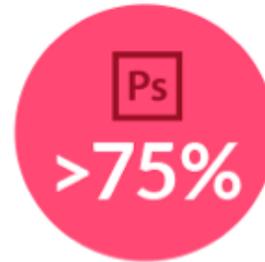
## Futility: The Fight Against Online Piracy



Online users find nothing wrong with online piracy



Of global internet bandwidth is used for online piracy



Of computers have at least 1 downloaded illegal application



Of music downloaded online is illegal



# What Will Happen Next?

# Within Control

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# Away From Control

**5 Is**

**Infringement**

**Identification**

**Impractical/Impossible**

**Irrelevant**



# Away from Control: Bigger Effect

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Why buy brands?

# Away from Control: Bigger Effect

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“Do I envision a future where we might still own the file, from an IP perspective, . . . and you can manufacture that in your home . . .? Oh yeah, that’s not that far away.”

Eric Sprunk, COO



“will people still pay for that Nike file . . . or will . . . people . . . rather brag that they . . . designed and printed their own shoes instead of simply printing a file from a company?”

Michelle Matisons, 3Dprint.com



# My Vision

# My Vision

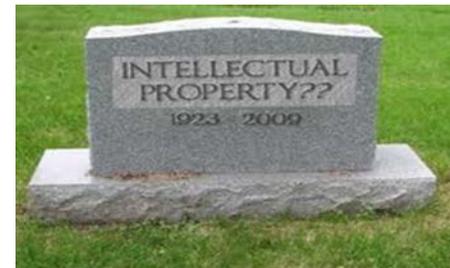
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- **Within Control**

- Multi-function machines
- Radically different L&F
- Complement TM
- Every classroom
- Flourishing economies

- **Away from Control**

- iFactory
- Every home
- Any functionality
- Easy as a breadmaker
- **IP increasingly irrelevant**



# When?

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“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



# Will we be Ready?

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“a substantial portion of manufacturers may be caught off-guard by the rapid changes underway”





**Keep in Mind . . .**

# Keep in Mind

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- Tipping into the mainstream



- Everything will change . . .
- Implications

# QUESTIONS??



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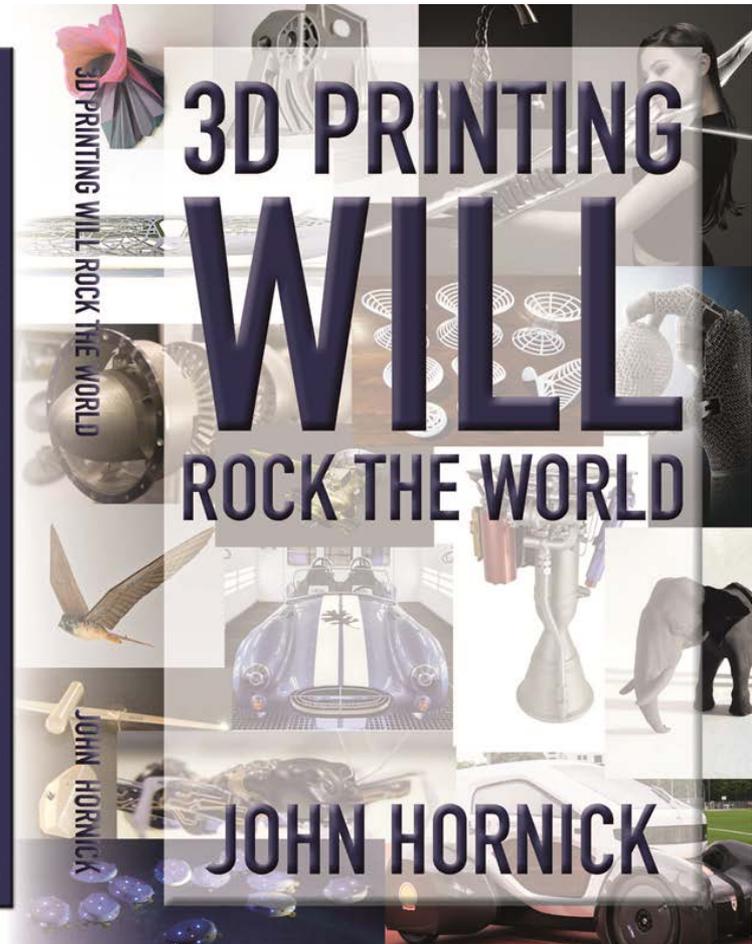
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# Disclaimer

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