



# How Desktop 3D Printers Save Time and Money in Manufacturing

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Moderator:  
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**USC Price**

Sol Price School of Public Policy  
*Center for Economic Development*

**AMP SoCal Webinar Series: Episode 9**  
**June 8, 2018 10:00 a.m. – 10:45 a.m.**

# About AMP SoCal

- The Advanced Manufacturing Partnership for Southern California (AMP SoCal) is a collaboration of more than 150 different organizations.
- Its goal is to strengthen the industrial ecosystem for aerospace and defense manufacturers.
- AMP SoCal is led by the University of Southern California (USC) Sol Price School of Public Policy - USC Center for Economic Development.
- AMP SoCal supports the aerospace and defense manufacturing industry within the 10-county Southern California region.

# Logistics

- All audio will stream through your computer speakers.
- Please submit your questions anytime throughout the presentation in the chat box, located on the bottom of your screen.
- Webinar recording and slides are posted within one week of the event.

[ampsocal.usc.edu/webinars](https://ampsocal.usc.edu/webinars)

# Today's Speaker



## **Mara Hitner**

Director, Business Development  
MatterHackers

# How Desktop 3D Printers Save Time And Money In Manufacturing



**MatterHackers**

**Mara Hitner**

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# Professional 3D printing made accessible

**Product development**

- Concept directions
- Shape and form
- Functional prototypes
- Look and feel

4

Jigs and fixtures  
Quality assurance  
Tool organizers  
Molds and patterns

6

**Manufacturing aids**

8

**End-use parts**

- Custom one-offs
- Small batches
- Replacement parts
- Decentralized manufacturing

12

- Surgical planning
- Patient communication
- Clinical training
- Medical instruments

10

**Medical**

- Concept models
- Massing studies
- Client presentations
- Master plans

**Architecture**



# Professional 3D Printing Applications



Mechanical Design



Technical Studies



Fixturing & Fabrication



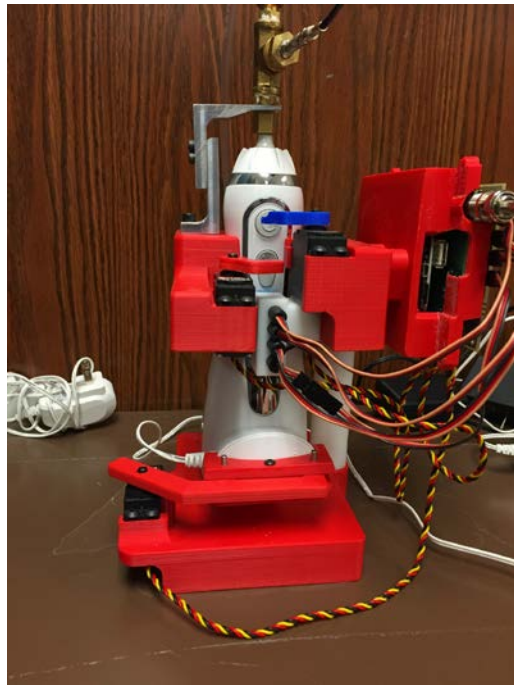
Functional End-Use

# Volkswagon Autoeuropa: 3D Printing Jigs and Fixtures

*"3D printing developments result in a 91% cost reduction and 95% reduction in tool development time. Ultimaker makes it possible to improve tool ergonomics by 28% and the final product quality by 35%."* **Helena Trincheiras**, Pilot Plant Engineer at Volkswagen Autoeuropa

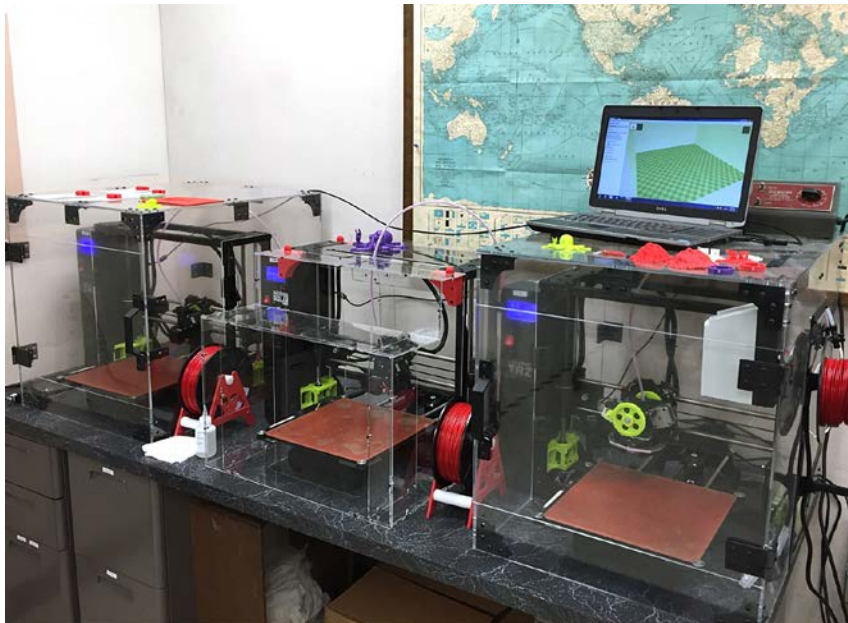






# Water Pik: 3D Printing Fixtures and Components

“The largest and most valuable benefit of the TAZ 6 3D Printers is that they have reduced our costs of printing fixture components dramatically,” Paul Burdick, Engineering Machinist





# Fabcon Corporation: Contract Manufacturing

“We use 3D printing for prototypes, conception design, production, and tooling.” Bert Ohlig, Founder



Fabricating 3D printed jig for machining tool on a MAKEiT Pro-L

## Traditional Manufacturing



2 WEEKS



\$820

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## 3D Printed Manufacturing



1 Day



\$19

# Guardian Bikes: Shrink Product Development Cycles

“With 3D printing we were able to take something from the screen and into physical part the same day. We then throw it on the bike and immediately see if it works, make changes, and have 5-6 design iterations in days versus months.” Brian Riley, CEO



# SynDaver: 3D Printed Medical Simulator

“It’s all about improving patient safety by having providers be more educated. With 3D printing, we are continuing the evolution of impacting patient lives by offering a training solution that is affordable and accessible.” Kevin King, VP Global Marketing

**Leading Simulation Mannequins:**  
\$60,000 - \$100,000  
No customization options.

**SAMM 3D Printed Mannequins:**  
\$10,000 (includes 3D printer)  
Open source files for customization.

# Emerging Trends:

- Distributed printing
- High-temp materials
- Hybrid fabrication strategies
- Parts sourcing





# The Right Tool For The Right Job

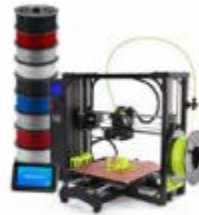
**ECONOMICAL ADVANCED  
MANUFACTURING**



**Pulse XE**

Build Volume: 10" x 8.5" x 8.5"

**LARGE FORMAT  
WORKHORSE**



**LulzBot TAZ 6**

Build Volume: 11" x 11" x 10"

**PLUG AND PRINT  
RELIABILITY**



**Ultimaker 2 Extended +**

Build Volume: 9" x 9" x 12"

**REVOLUTIONARY  
DUAL EXTRUSION**



**BCN3D Sigma IDEX**

Build Volume: 8" x 12" x 8"

**LARGE FORMAT  
DUAL EXTRUSION**



**Raise3D N2 Plus Dual**

Build Volume: 12" x 12" x 24"

**INVENTABLES X-CARVE  
1000MM 3D CARVER**



**Inventables X-Carve**  
Build Volume: 750mm x 750mm x 65mm  
~~1,799~~ 1,599

**CARBIDE  
CNC MILLING MACHINE**



**Carbide 3D Nomad 883 Pro**  
Build Volume: 8" x 8" x 3"  
~~2,799~~ 2,499

**PEOPOLY MOAI  
LASER SLA 3D PRINTER**



**Peopoly Moai Resin 3D Printer**  
Build Volume: 5.1" x 5.1" x 7"  
~~\$2230~~ \$2073

# Other Desktop Fabrication Options

**Thanks & Happy Printing From**



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