

Fairview Fabrication Lab

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It is an enabling piece of infrastructure for the third industrial revolution.

“Additive manufacturing has the potential to revolutionize the way we make almost everything.”

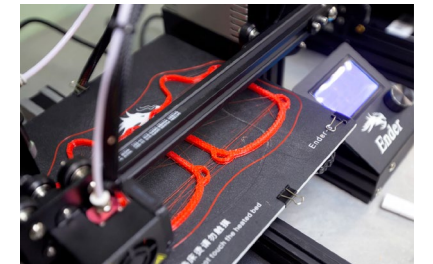
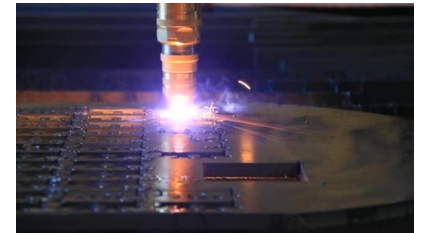
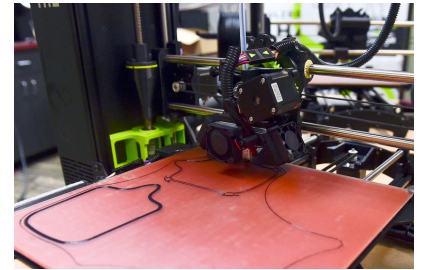
2013 State of the Union Address, US President Obama. “... establish 15 additive manufacturing hubs in US.”

Fabrication Labs and the 3rd Digital Revolution

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- ▶ First two digital revolutions were in computers and communications.
- ▶ Third digital revolution is in transferring Bits to Atoms.
- ▶ Fabrication Labs represent a cornerstone technology.
- ▶ Community Based facility for Additive Manufacturing.



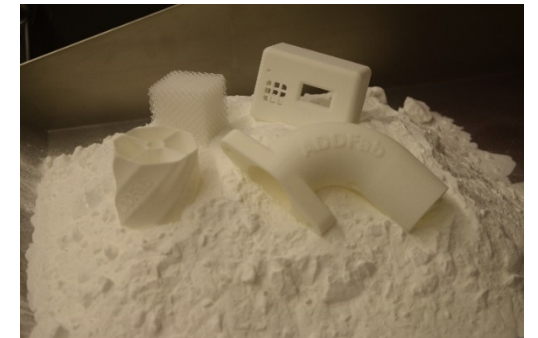
Additive Manufacturing via a Fab Lab

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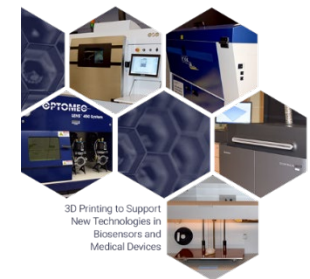


Many Opportunities to Innovate:

- ▶ Shape Complexity: Almost no restriction on part complexity
- ▶ Material Complexity: Parts with multi-material, composite materials among others
- ▶ Functional Complexity: Fabricate Assemblies or parts with different material complexity.
- ▶ Mass Customization: Example – dozens of dental crowns or bridges can be fabricated in a single build, each for a different patient.



UMassAmherst | Core Facilities
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3D Printing to Support
New Technologies in
Biosensors and
Medical Devices

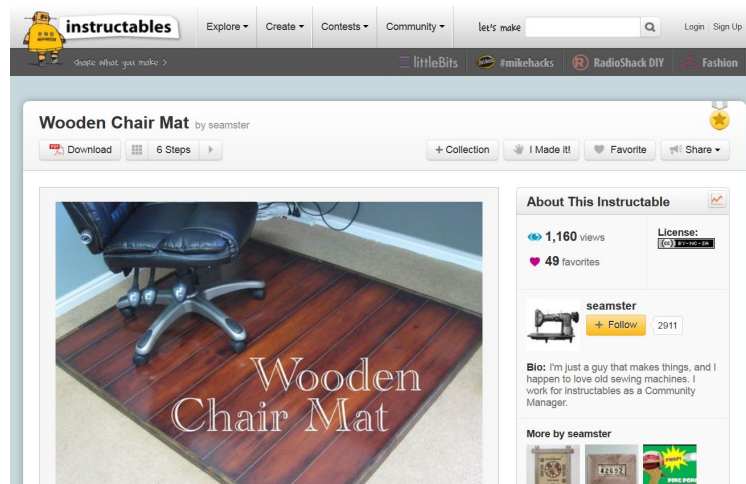
What would the Fairview Fab Lab be?

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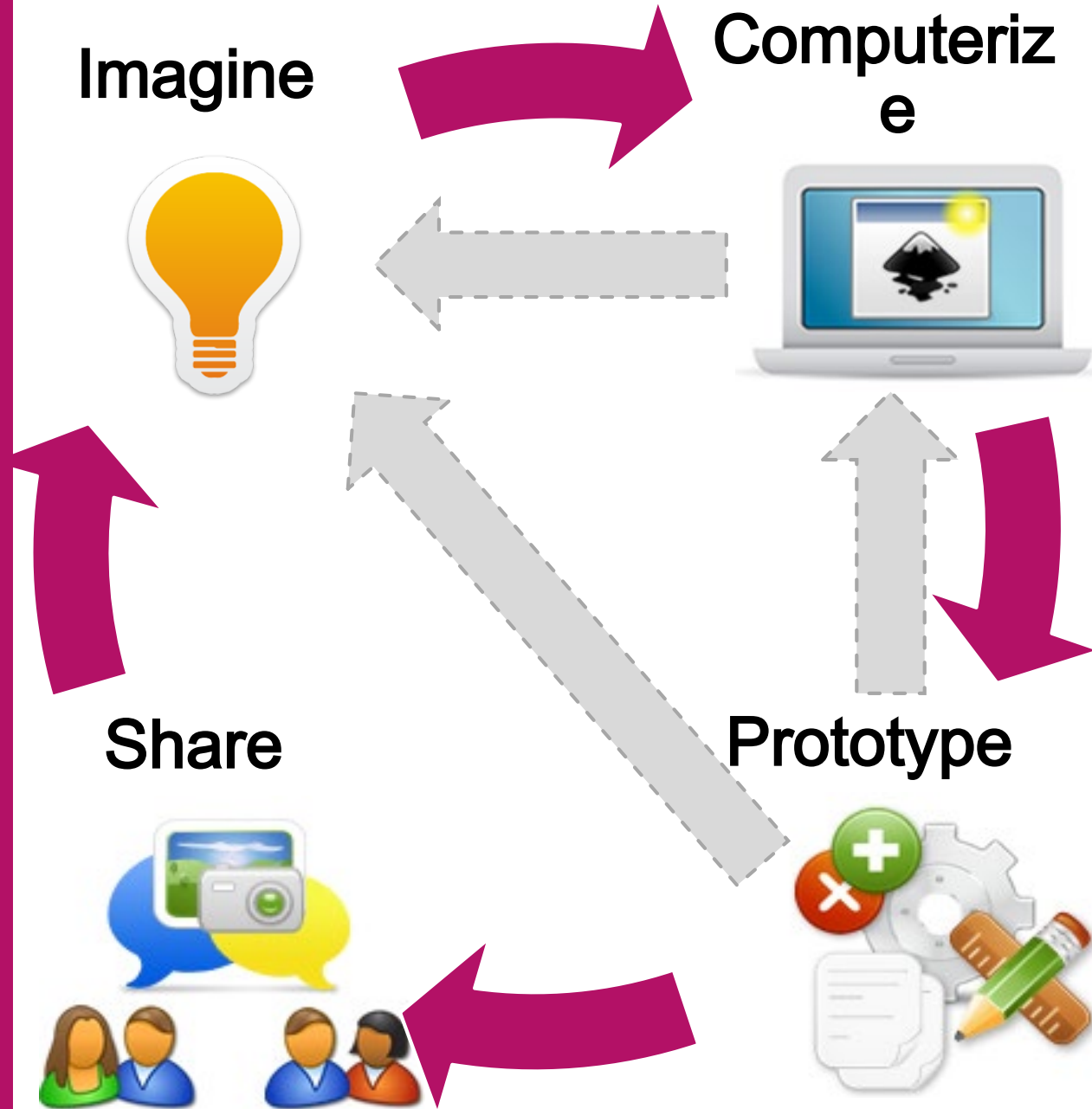


Fairview Fabrication Lab would be an anchor tenant or cornerstone of the Fairview Innovation Area.

Investment in our urban neighborhood geared to empowering people for 21st Century jobs and new Artisanal work occupations.



The Fab Lab Process

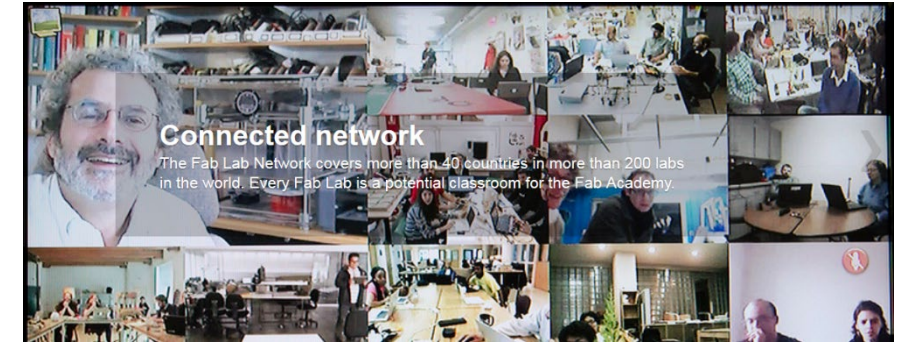


But what is a Fab Lab, really?

A **Fab Lab** is like a modern inventor's workshop. It is a place for **rapid prototyping** and **fabrication** for iterative design. There are many Fab Labs and they all share similar tools, software and ideologies.

Fab Labs can be part of...

- Businesses and Incubators
- Technical Training Institutes & Community Colleges
- Museums and Libraries
- Community Centers and Government Offices
- Universities and Schools
- Some are stand-alone Makerspaces



There are Fab Labs all over the world!



Originally started at MIT, there are now over 200 Fab Labs world-wide

Fab Labs help people all over the world to develop and share cutting-edge technologies and ideas. They have a yearly conference and online academy.

There is an effort to create Fab Cities – where urban areas become self-sufficient by 2054.



Mission of the Fairview Fab Lab

- ▶ **Not** a high-end additive manufacturing facility. Typical budget
 - ▶ > \$1,000,000 with Research instruments (electron microscope, X-Ray Scanner).
 - ▶ Usually co-located at a University
- ▶ Fairview Fab Lab Focus is three-fold
 1. Value added components on international products (Logistics Hub to Logistics Cluster)
 2. Import Substitution of goods. Self-sufficiency of goods production by 2054 (FAB City network)
 3. Innovation within Alaska specific industries (i.e. aviation, fishing, etc.)

What are key components?



- ▶ Modern-day inventors' workshop
- ▶ Rapid prototyping and fabrication lab
- ▶ A Partnership with Anchorage School District (Fairview Elementary as STEAM school) and UAA Community Technical development
- ▶ Education, innovation, art and entrepreneurship
- ▶ Anchor tenant of the Fairview Innovation Area
- ▶ Workshops and small business development for the 3rd Digital Revolution
- ▶ Special emphasis on kids and underserved residents





Fairview Fab Lab – A New Approach

- ▶ \$100,000 to \$999,999. Workshop atmosphere with manufacturing tools (developing approaches and proof of concept for new products)
 - ▶ Rapid Prototyping (MakerSpaces as sub-element with tools such as laser cutters, 3-D printers, etc.)
 - ▶ Processing tools including component molders and etcher lathes
- ▶ Integration with Fairview Community assets
 - ▶ Entrepreneurs, Artisanal and Gig workers
 - ▶ Establishing a new Maker ethos in people of all ages



Questions?