



# FABLAB

there is no limit

there is no limit

EVBBVB



# Problem



# Goals

- Raise public interest in the Fab Lab
- Develop a sustainable operations model



# Team Breakdown



# Outreach: Achievements

- Raised public awareness
- Evaluated usability of the Fab Lab
- Assessed usefulness of the Fab Lab



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# Outreach:

## Raising Public Awareness

- [www.chicagoFabLab.org](http://www.chicagoFabLab.org)
  - Learn about the Fab Lab
  - Find out how to get involved
  - Join the discussions



FABLAB

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Chicago's Fab Lab is located at the heart of the Museum of Science and Industry and provides digital fabrication tools for rapid prototyping to the general public.

[Equipment](#)[Projects](#)[Philosophy](#)

### Equipment in Fab Lab

Read about fascinating equipment we have in the lab:

- Modela
- Vinyl cutter
- CNC router
- 3D Printer

- And more...



### News and events

**Mar 18, 2010**

Fab Lab team with its glowing exhibit was the main guest of the monthly entrepreneurial meeting at the Knapp Entrepreneurship Center at IIT. Entrepreneurs from all over the country expressed their interest in the Fab Lab.

**Feb 20, 2010**

Fab Lab was presented at the DuPage Engineers Week 2010 at the Illinois Institute of Technology Rice Campus by the IPRO Fab Lab team. We attracted a lot of attention from the kids and their parents interested in rewarding educational experience!



[See more pictures...](#)

# Outreach: Raising Public Awareness

- Participation and presentation at technology expositions

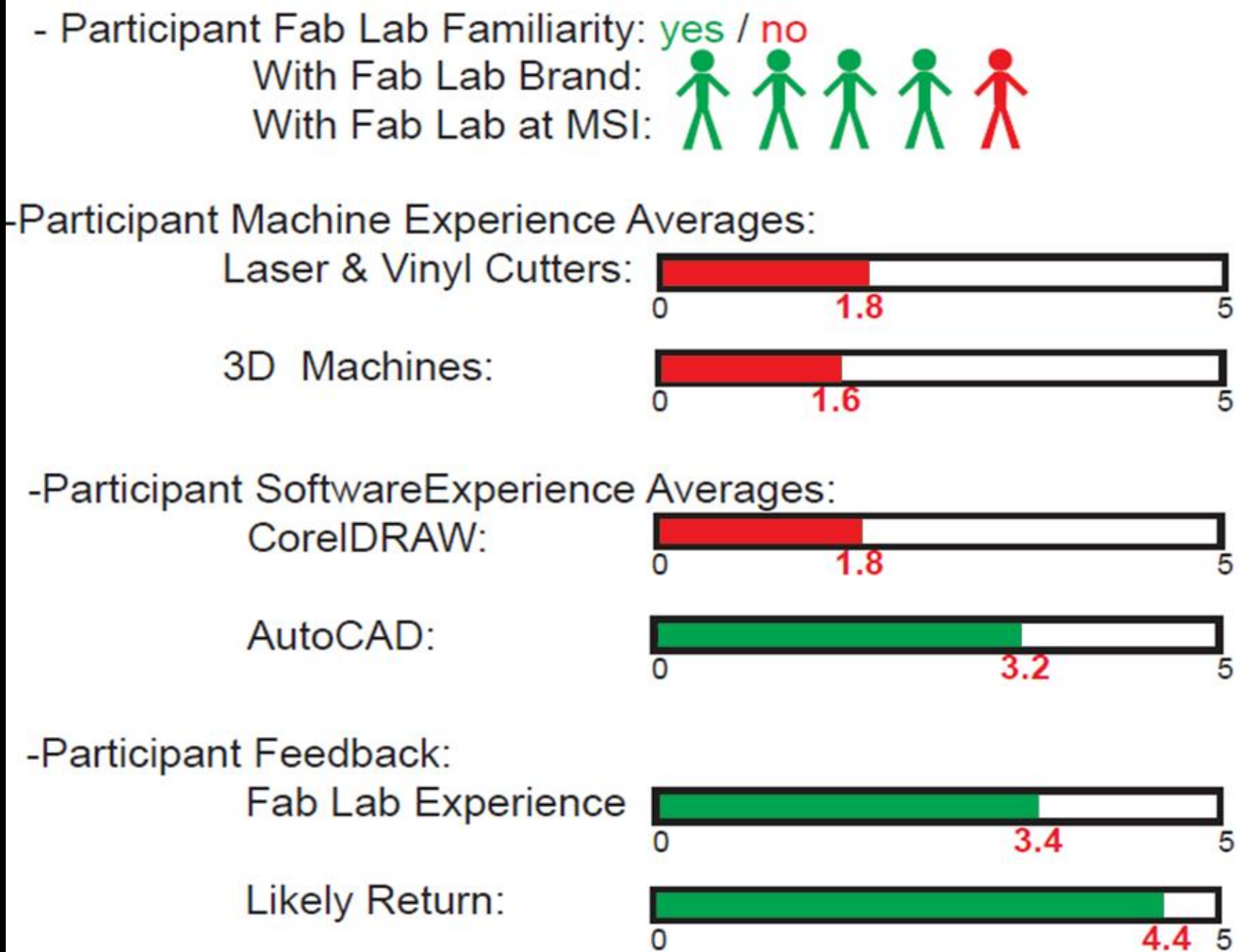


*The Twenty Sixth Annual  
DuPage Engineers Week Expo*





# Outreach: Evaluating Usability



# Outreach: Assessing Usefulness



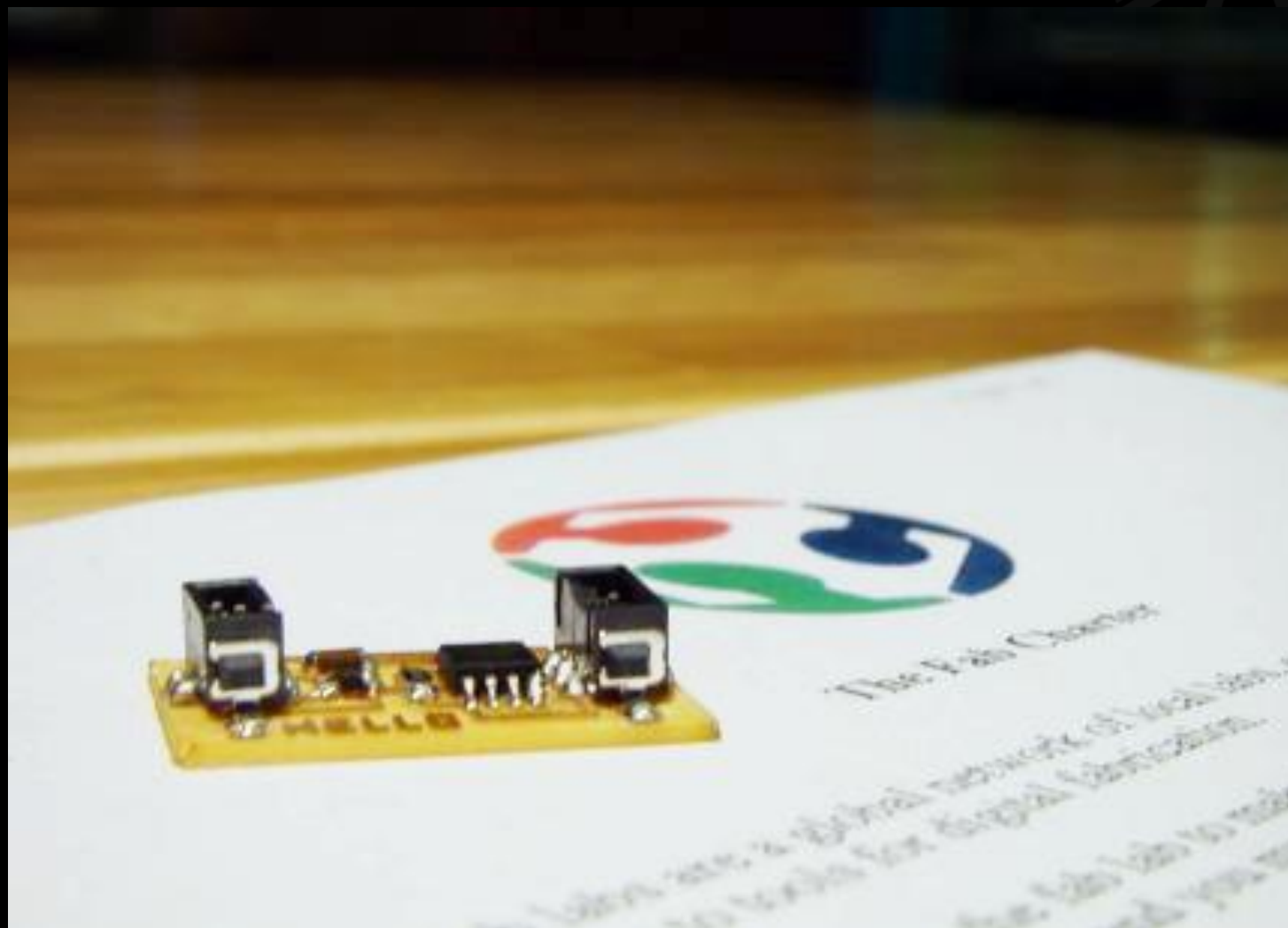
*"I personally would use the Fab Lab for hundreds of home projects as I have big plans in that regard."* – IPRO 349 student

*"Fab Lab has enormous potential to make a significant impact on the Chicago and entrepreneurial and inventor's community. While I was at the lab ideas kept popping into my head about what other things I would like to do in there."* - Ed Budd  
Co-founder, eMotion

*"To me, this kind of thing is utterly cool."*  
- William Komaiko, M.D., M.B.A.  
Principal, GDS Capital

# Production: Achievements

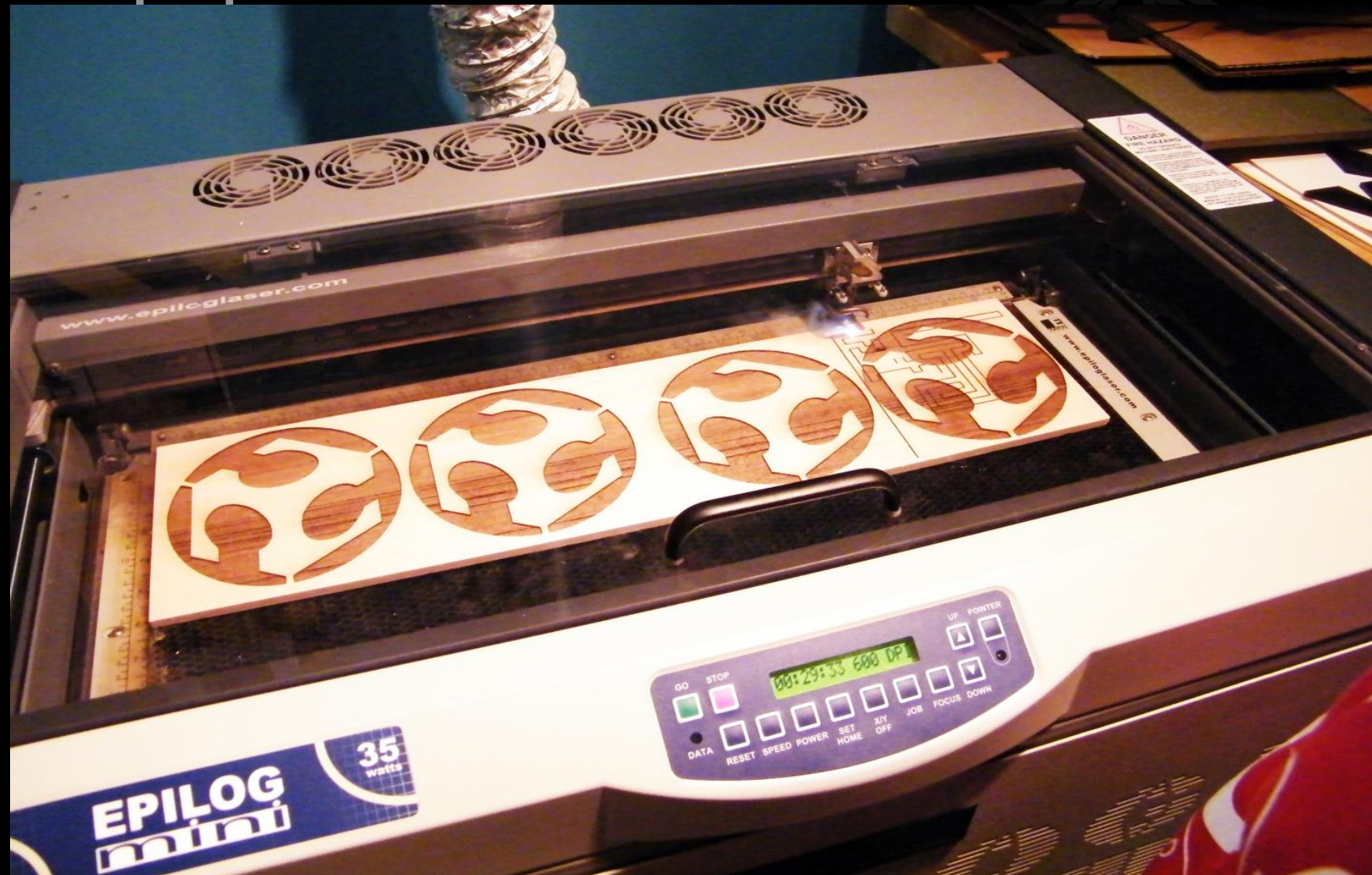
- Developed an understanding of how the machines work





# Production: Achievements

- Assisted and supported other teams through use of equipment





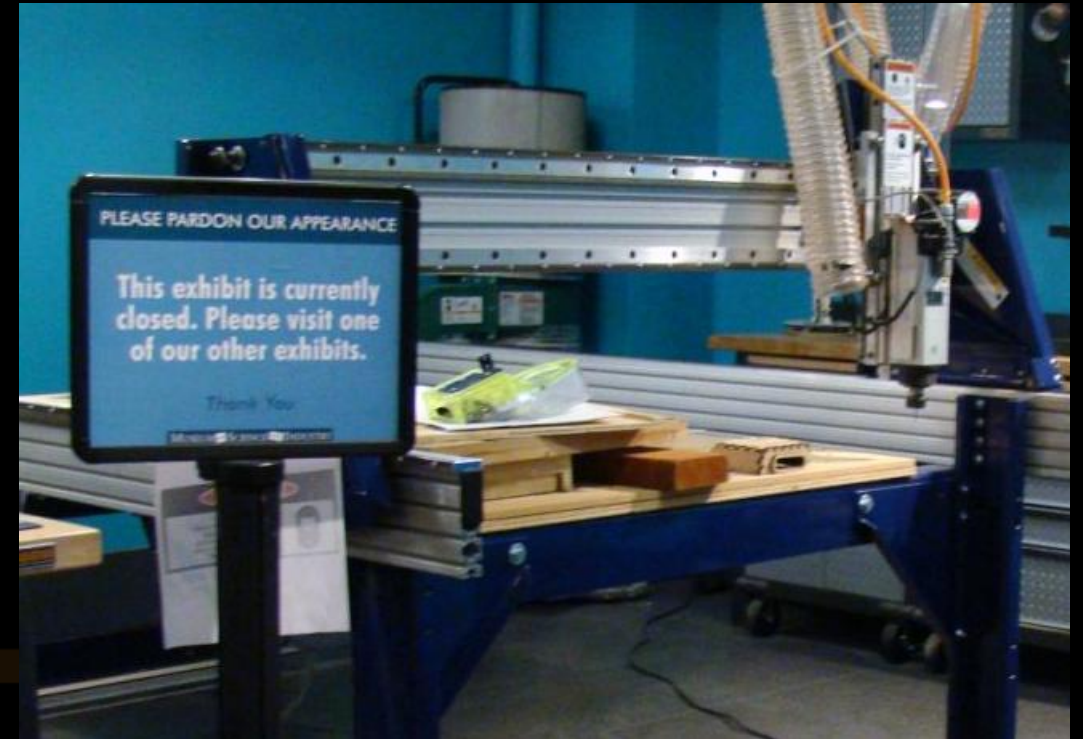
# Production: Achievements

- Educated focus group on the use of machinery



# Operations: Goals

- Create a self-sustainable operations model for Fab Lab at MSI
- Integrate Fab Lab concept with MSI strategic vision



# Operations:

## Big Questions



- What are the Museums intentions?
- Can the Fab Lab become an exhibit?
- Can the Fab Lab become publicly accessible?
- How can the Fab Lab generate revenue?
- What is the relevant cost?



# Operations: Sources

- Exhibit format and existing sources of revenue for MSI
- Fab Labs all over the world.
- Tech shop fabrication labs.



museum of  
**science+industry**  
chicago



**TechShop**  
BUILD YOUR DREAMS HERE



# Operations: Fab Lab Framework



- Create an engaging and educational experience.
- Allow for MSI member access to Fab Lab
- Include off-site training and certification options
- Specify reservation and usage guidelines
- Spread awareness and generate user interest

# Operations: Learning Labs



- A fun, youth oriented experience
- Demonstrate the science and capabilities of the Fab Lab
- 90 minute sessions, twice daily, 3-5 days a week
- \$150 session fee for groups of up to 20 students
- Follow up projects, and continued learning activities

# Operations:

## Member Use



- MSI membership required.
- \$25 Fab Lab user fee (Quarterly)
- Training and Certification course provided
- 1 of 5 stations can be reserved for \$30 per one hour time block.
- Website will act as off-site user resource.

# Operations:

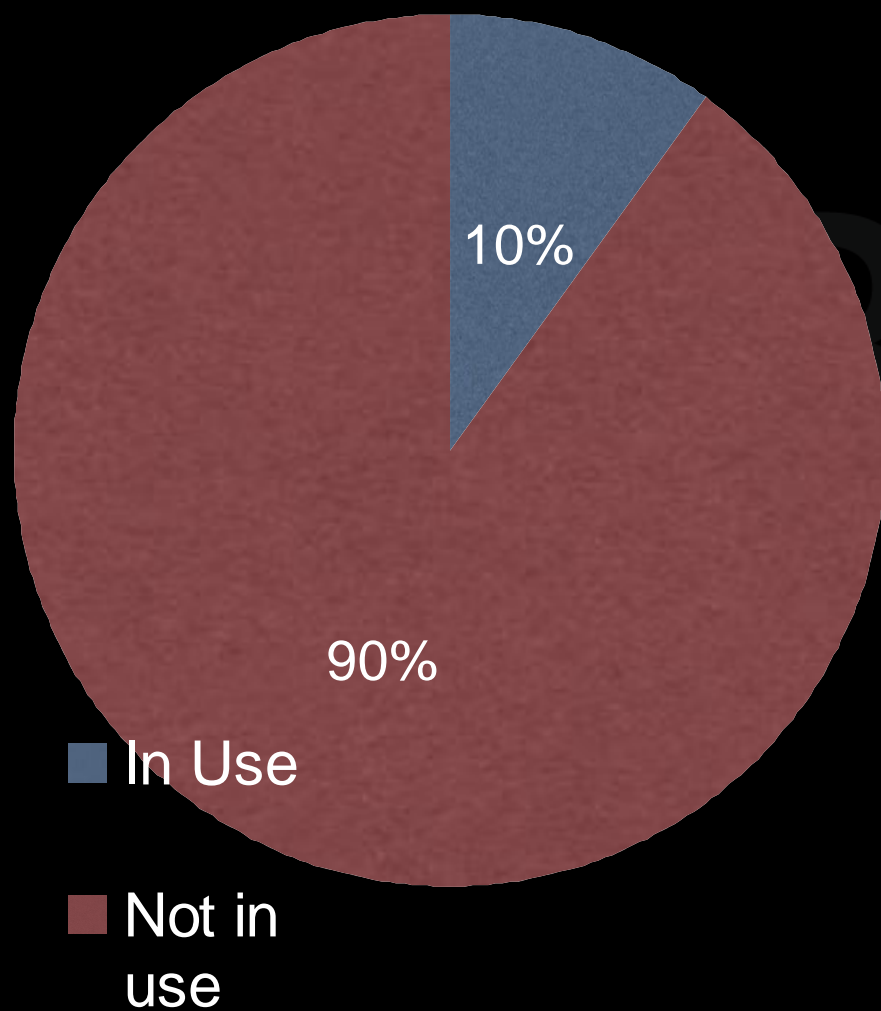
## Rebuilt Fab Lab Exhibit

- Historical Fab Lab timeline
- Highly interactive learning kiosks
- Create virtual inventions
- Viewing portholes into the lab





# Operations: Lab Utilization



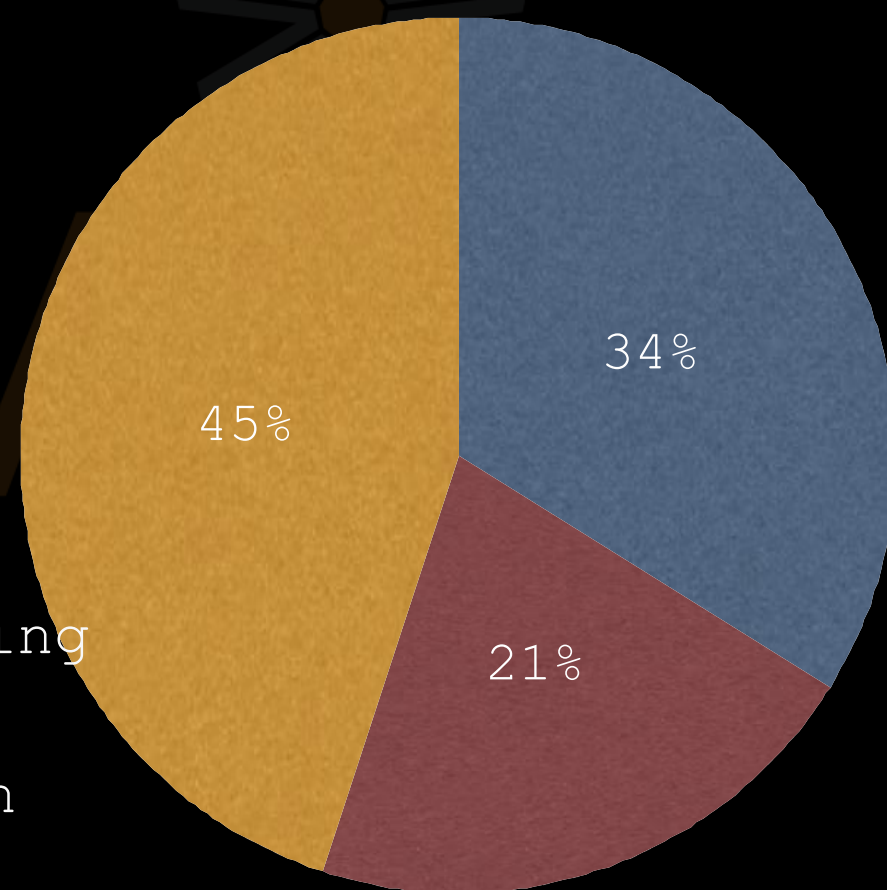
■ In Use

■ Not in use

■ Learning Labs

■ Not in use

■ Member Usage



# Operations: Cost Analysis



Revenue	50% Capacity	Full Capacity
Learning Labs	\$ 49,000	\$ 98,000
Member Usage	\$ 93,500	\$187,000*
Total Revenue	\$142,500	\$285,000*
Costs		
Staffing expense	\$104,000	\$104,000
Overhead Costs	\$ 6,000	\$ 12,000
Total Costs	\$110,000	\$116,000
Net Income	\$ 32,500	\$169,000

# Obstacles

- Communication difficulties with stakeholders
- Lack of access to the Lab
- Major machines not functioning

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# Conclusion

- Gauged potential interest in the Fab Lab
- Defined the optimal educational experience at MSI
- Gathered useful data from Fabrication Laboratories all over the world
- The end product is the groundwork for a self-sustainable operations model at FabLab MSI





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# Cost Analysis

	Revenue								
	Learning Labs			Cost of electricity	\$0.134/hr				
	Cost per session	\$150.00							
	Sessions per day	2		Machine	# of	Energy Usage Each (kW)	Hours Used	Kilowatt-hours	Cost
	Days Utilized	3	(50% of capacity)						
	Weeks per year	52		Dell Optiplex 745	15	0.22	8	26.4	\$3.54
	Total from Labs	\$46,800.00		Roland Vinyl Cutter	2	0.03	8	0.48	\$0.06
				Modela	2	0.04	8	0.64	\$0.09
	Reservations			Epilog	2	2.55	8	40.8	\$5.47
	Cost per Station	\$30.00		Prodigy Plus 3D printer	1	1.8	8	14.4	\$1.93
	Number of Stations	5		Soldering Irons	2	0.06	8	0.96	\$0.13
	Operating Hours	4		CNC	1	3	8	24	\$3.22
	Days Utilized	3	(50% of capacity)	Bandsaw	1	0.156	8	1.248	\$0.17
	Weeks per year	52		Drill Press	1	0.72	8	5.76	\$0.77
	Total from Open Access	\$93,600.00		Dust Collector	1	1.49	8	11.92	\$1.60
	Labs	\$46,800.00		Lights	30	0.06	8	14.4	\$1.93
	Total Revenues	\$140,400.00						DAILY	\$18.90
								YEARLY	\$5,895.26
	Overhead Costs								
	Lab Manager	\$50,000.00	per year						
	Lab Assistants	\$54,080.00	per year (2 assitants)						
	Costs of Operation	\$5,895.26							
	Total Costs	\$109,975.26							
	Income								
	Revenue	\$140,400.00							
	Overhead Costs	\$109,975.26							
	Total Income	\$30,424.74							