Makerspace as Civic Infrastructure: A Case Study of Open Works

Design School & the Industry Turn Design Museum, London, UK
19 June 2017
Modern makerspace development

- Karl Hess publishes “Community Technology”
- First modern hackerspace, C-Base, opens in Berlin
- First FabLab established by MIT in South Boston
- Make magazine founded
- Artisan’s Asylum opens
- TechShop founded
- Greater London Economic Board establishes 4 community technology networks
- Open Works opens
Design platform development

- Distributed manufacturing
- Crowdsourcing/co-creation
- How-to community
- E-commerce

- Local Motors
- RepRap Project
- Instructables
- Make magazine
- Big Cartel
- Ponoko
- Shapeways
- Supermarket
- Thingiverse
- IndieGoGo
- GitHub
- The Grommet
- i.materialise
- Kickstarter
- Quirky
- Fab
- OpenDesk
- WeVolver
- UnCommon Goods
- Etsy
- 100K Garages
- Open Source Ecology
- Big Cartel
- OpenCartel
- 2000
- 2007
- 2014

E-commerce
How-to community
Crowdsourcing/co-creation
Distributed manufacturing
Over 300 makerspaces across the U.S.
Global FabLab Network
U.K. makerspace characteristics

**TYPOLOGY**
- For Profit: 40%
- Charity: 10%
- CIC: 12%
- Informal: 10%
- Other: 10%
- Unincorporated: 10%

**GENDER**
- Male: 80%
- Female: 18%
- Other: 2%

**Total makerspaces in U.K.:** 97

**Average footprint:** 889 m²

**SOURCES:** Nesta, http://www.nesta.org.uk/blog/top-findings-open-dataset-uk-makerspaces
U.S. makerspace characteristics

**TYPOLOGY**
- 44.5% CLUB
- 12.5% FOR PROFIT
- 17.5% NON PROFIT
- 17.5% INSTITUTIONAL

**GENDER**
- 66% MALE
- 34% FEMALE

**EDUCATION**
- 98% COLLEGE-EDUCATED

**SOURCES:** Maker Faire Bay Area 2012 Attendees // Online research, June 2015

**Average monthly cost:** $50

**Average footprint:** $889m²

**Average membership base:** 150
Local Context

MAKERSPACES (15)

PUBLIC SCHOOLS (181)

UNIVERSITIES (11)
Neighborhood indicators

**BARCLAY**
- Population: 2,158
- Med. Home Value: $133,557
- Median Income: $35,788
- Unemployment: 7% or more
- High School Compl.: 61%

**GREENMOUNT WEST**
- Population: 1,250
- Med. Home Value: $158,100
- Median Income: $38,755
- Unemployment: 7% or more
- High School Compl.: 75%

**JOHNSTON SQUARE**
- Population: 1,600
- Med. Home Value: $87,900
- Median Income: $32,821 or less
- Unemployment: 7% or more
- High School Compl.: 61%
Design evolution
Floor plans
Construction
Opened Sept. 28th, 2016
7 workshops + computer lab
Greenmount Coffee Lab
IMPLEMENTATION
Our mission is to make tools, technology, & the knowledge to use them accessible to all.
**INSTITUTIONAL PARTNERS**
- Universities
- Baltimore City Public Schools

**RWD FOUNDATION**
- Primary Funder

**BARCO**
- Nonprofit Developer/Landlord
- Business support/fiscal sponsor

**OPEN WORKS**
- Nonprofit makerspace

**EDUCATION**
- Partner organizations
- Contract teachers

**FABRICATION**
- Technicians

**MEMBERSHIP**
- Member Service Associates
- Ambassadors

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**Organizational Structure**
OPEN WORKS
Nonprofit makerspace

EDUCATION
Partner organizations
Contract teachers

FABRICATION
Technicians

MEMBERSHIP
Member Service Associates
Ambassadors

University partnerships
Adult classes
Grant funding

Contract services
Hire-an-expert
Material sales

Studio rentals
Maker member: $70/mo.
Builder member: $90/mo.
Pro member: $125/mo.
Group memberships
Event rentals

Business Model
Programming Structure

**ADULT EDUCATION**
- **MAKE-YOUR-OWN**
  - Project-based classes
- **CRASH COURSES**
  - Skill-based classes
- **SAFETY + CERTIFICATION**
  - Required for shop access

**YOUTH EDUCATION**
- **OPEN WORKS MOBILE**
  - Off-site maker programming
  - Primarily K-5 audience
- **TEEN MAKER SHOP**
  - After school cohort of 15 teens
  - From neighboring high school
- **YOUTH MAKER SHOP**
  - After-school / Saturday mornings

**COMMUNITY PROGRAMMING**
- **JOB TRAINING**
  - Cut-and-sew job training pilot program
- **SENIOR CLASSES**
  - Scholarship classes for sewing and woodworking
- **COMMUNITY BENEFIT**
  - Weekly farmer's market, coffee shop, drone race
Learning Cycle

- Hands-on workshop education
- Design problem & solution
- Portfolio or product

Skills & Techniques

PROJECT

EVALUATION
**Business Model**

**PROJECTED**

- **$95** Average Monthly Membership Fee
- **$75** Hourly Contract Services Rate
- **$22** Average Hourly Class Fee
- **400** Projected Member Capacity

**ACTUAL TO DATE**

- **58%** Contract Services
- **31%** Education
- **21%** Member-ship
- **21%** Micro-studios
- **10%** RENTALS
- **46%** Membership
- **23%** Micro-studios
- **27%** Contract Services
- **6%** RENTALS

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**Business Model**
MEMBERSHIP TYPES (223 TOTAL)

- 33.5% MAKER
- 35.5% BUILDER
- 29% PRO

GEOGRAPHIC DISTRIBUTION

Membership
Education

- Safety class participants since opening: 598
- Elective class participants since opening: 121
- Youth class participants since opening: 292
- Open Works Mobile site visits: 46
Fabrication

**SIGNAGE**
69 Jobs complete

**OPEN DESK**
2 Open Desk distributed manufacturing jobs

**DIY VACUUM-FORMER**
$3,035 Avg. job
Member projects
Community
NEXT
What does this mean for the future of design?
The smile curve

R+D

Branding + design

Manufacturing

Marketing + distribution

Sales

SOURCE: Stan Shih, founder of Acer, Inc.
Manufacturing + employment trends

19% U.S. share of global manufacturing output

53M Number of U.S. contractual workers

55% Jobs vulnerable to automation

63% Growth in local single-employer manufacturers since 2003

DISRUPTED
DEMOCRATIZED
DECENTRALIZED
THANK YOU!

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