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DESIGNING AND MAKING: WHAT COULD CHANGE IN DESIGN SCHOOLS. A FIRST SYSTEMIC OVERVIEW OF MAKERS IN ITALY AND THEIR EDUCATIONAL CONTEXTS

POLITECNICO DI MILANO

DIPARTIMENTO DI DESIGN

Aalto University
School of Arts, Design
and Architecture

MAKE IN ITALY
CDB FOUNDATION

Make in Italy.org

MAKERS' INQUIRY

CONTEXT

An **emerging socio-technical paradigm** characterized by new forms of advanced, open and distributed manufacturing. *Democratization of fabrication* devices linked to an increasing abundance of *low cost (free) design* resources, the appearance of indie *online marketplaces* and new social forms of *micro-financing* innovative projects (crowdfunding) show the **rise of new ways of learning by doing** (e.g. *making, tinkering, hacking, fabbing*).

A NEW LANDSCAPE FOR EMERGING DESIGN AND PRODUCTION PRACTICES

o   the change in the occupational field of design → *design* is becoming *a mass profession* (Branzi, 2010);

o   the transformation of production and distribution activities→ *open&distributed digital manufacturing technologies* and personal fabrication services (Lipson and Kurman, 2013);

o   the change in the design approach→pro-amateur phenomenon and the democratization of technologies lead to the openness of the designer profile*: everyone could potentially act as a designer*.

Branzi, A. (2010). Ritratti e autoritratti di design. Venezia: Marsilio.
Lipson, H., & Kurman, M. (2013). Fabricated: The New World of 3D Printing (1 ed). Indianapolis, Indiana: Wiley

OBJECTIVES

Explore the **evolution** of designers and makers and their **educational models** in relation to:

o   places (virtual/real)
o   educational activities (virtual/real)
o   technologies
o   the modification of designers' profile in terms of skills and capabilities

MAKERS' INQUIRY

A NATIONAL SURVEY ON MAKING AND MAKERS: THE MAKERS' INQUIRY (July-October 2014)

1. **Makers** as advanced design users and design innovators;
2. **Designers-producers** as self-producers, designer-craftsmen and designer-entrepreneurs;
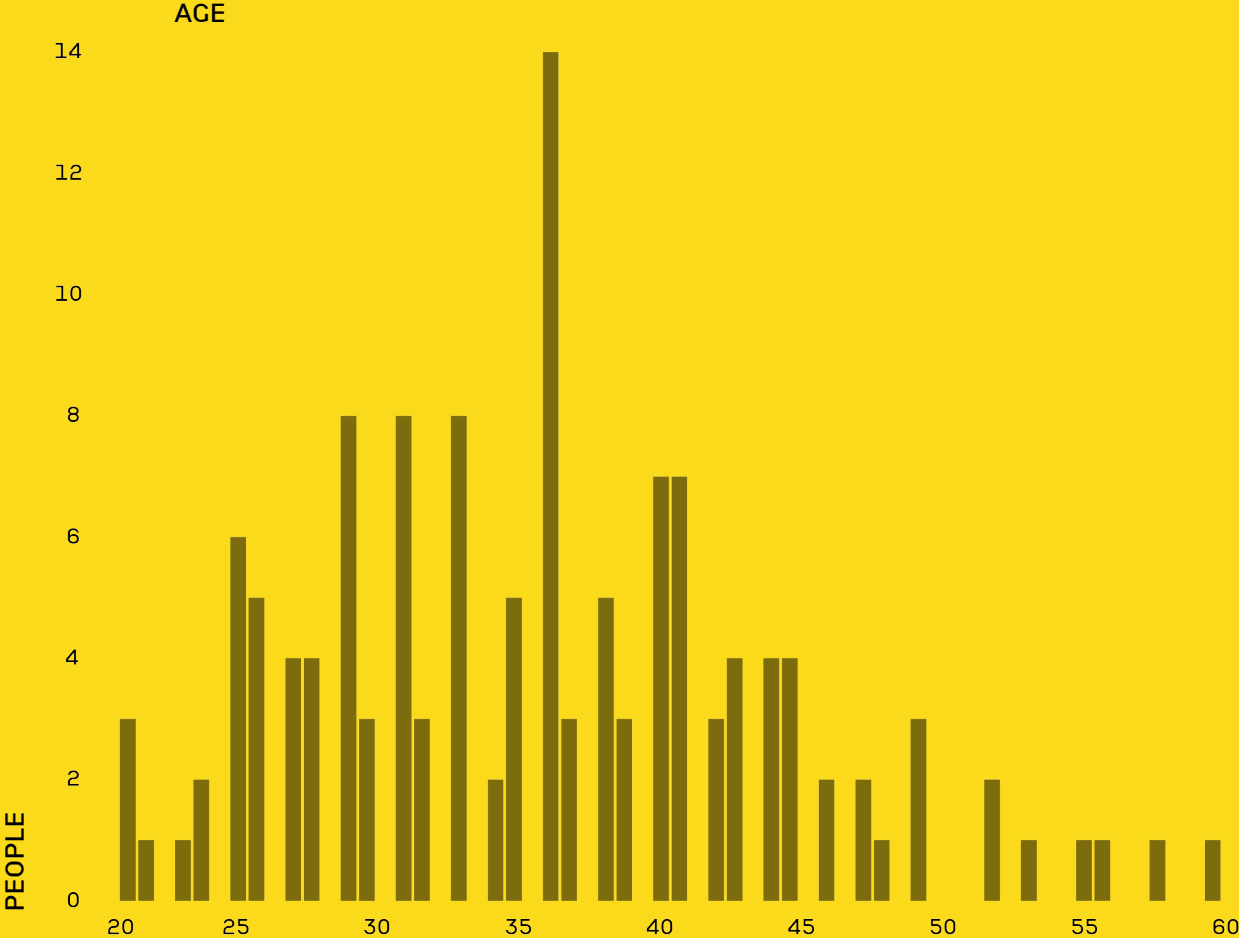3. **Makerspace managers** as product manager and design facilitators.

THE MAKERS' INQUIRY SAMPLE

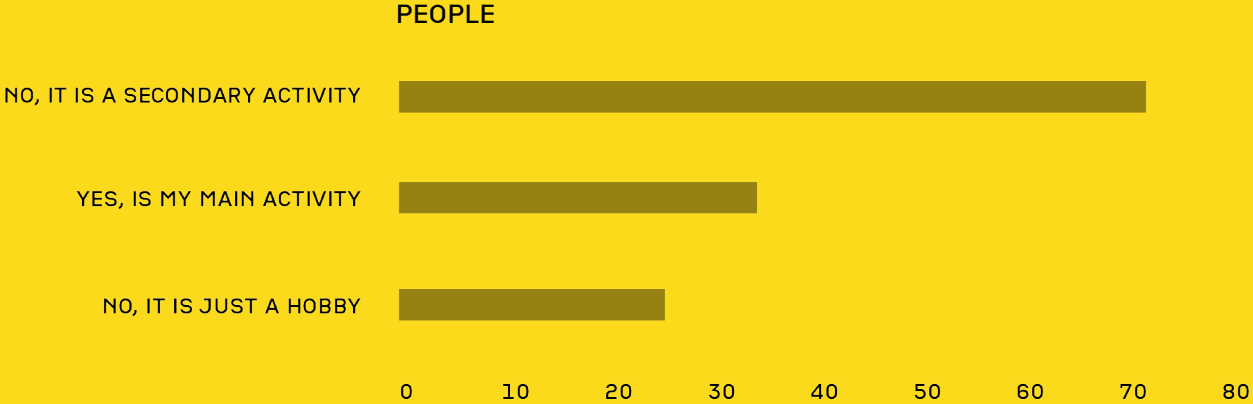We collected 245 answers (*134 answered to more than 30 questions over 60*: this is the sample considered)

1. **Makers 29,4%;**
2. **Designers-producers 48,5%;**
3. **Makerspace managers 21,6%.**

PROFILE: AGE

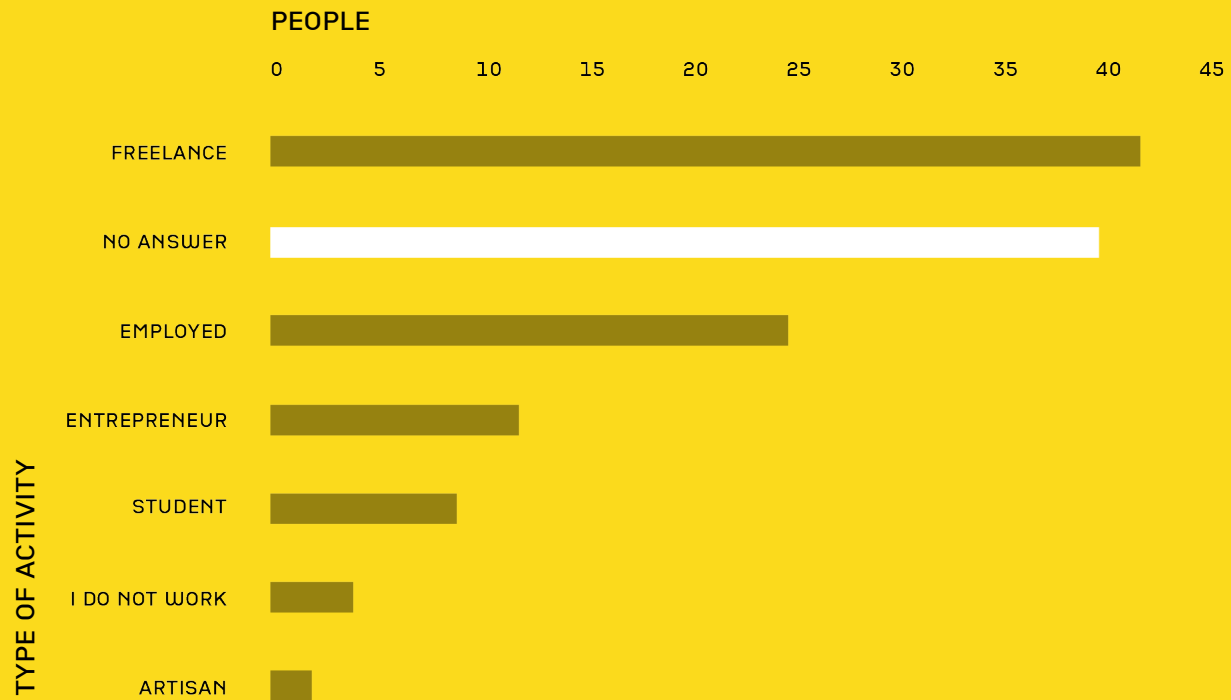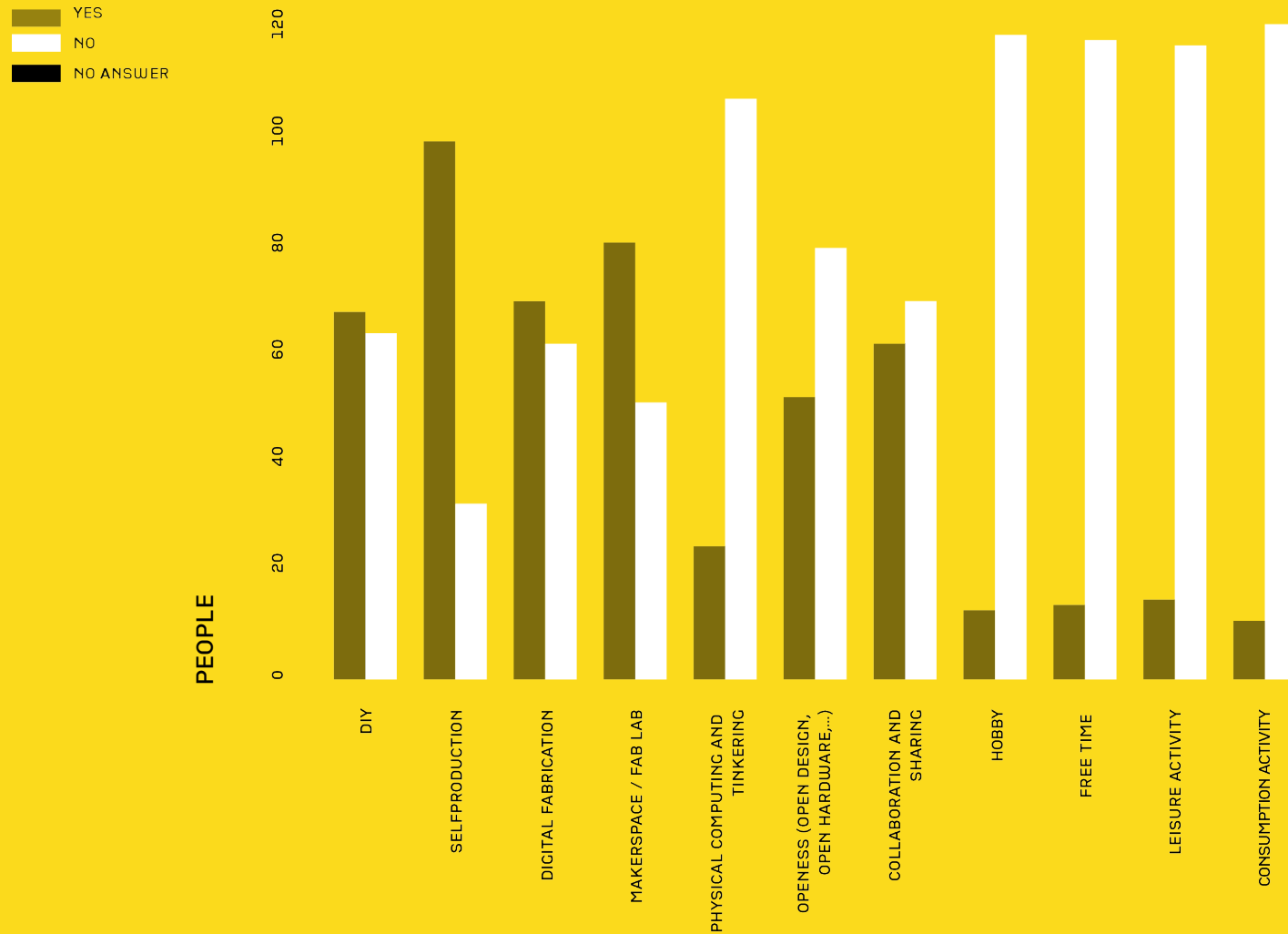# PROFILE: IS MAKING YOUR MAIN ACTIVITY?

PEOPLE

NO, IT IS A SECONDARY ACTIVITY	
YES, IS MY MAIN ACTIVITY	
NO, IT IS JUST A HOBBY	

0   10   20   30   40   50   60   70   80

PROFILE: WHICH IS YOUR MAIN ACTIVITY?

COMMUNITY: WHICH AMONG THE FOLLOWING KEYWORDS DO YOU ASSOCIATE TO MAKING?

Legend:
- YES
- NO
- NO ANSWER

PEOPLE

Y-axis: 0, 20, 40, 60, 80, 100, 120

Categories:
- DIY
- SELFPRODUCTION
- DIGITAL FABRICATION
- MAKERSPACE / FAB LAB
- PHYSICAL COMPUTING AND TINKERING
- OPENESS (OPEN DESIGN, OPEN HARDWARE,...)
- COLLABORATION AND SHARING
- HOBBY
- FREE TIME
- LEISURE ACTIVITY
- CONSUMPTION ACTIVITY

COMMUNITY: HOW MUCH IMPORTANT COLLABORATION AND SHARING ARE COMPARED TO?

Legend:
- EXTREMELY
- A LOT
- ENOUGH
- SLIGHTLY
- NOT AT ALL
- I DO NOT KNOW
- NO ANSWER

PEOPLE

Categories:
- GENERAL INFORMATION ON MAKING AND MAKERS COMMUNITY
- TECHNICAL/TECHNOLOGICAL KNOWLEDGE ON DESIGN AND PRODUCTION PROCESSES
- DATA AND FILES RELATED TO EXISTING PROJECTS
- DEVELOPMENT OF NEW PROJECTS
- TECHNOLOGIES, TOOLS MACHINES AND EQUIPMENTS
- WORK SPACES AND SETTINGS
- NEW INITIATIVES ORGANIZATION

COMMUNITY: DO YOU WORK IN A LABORATORY/ FABRICATION SPACE?

PEOPLE

TYPE OF ATTENDANCE

SPACES: WHERE DO YOU CARRY OUT YOUR MAKING ACTIVITY?

PEOPLE (Base: 29)

Legend:
- YES
- NO
- NO ANSWER

PLACES:
- HOME
- OFFICE
- COWORKING
- WORKSHOP
- ARTISAN WORKSHOP
- SCHOOL/UNIVERSITY (ROOM)
- UNIVERSITY (WORKSHOP)
- FACTORY
- MAKERSPACE / FAB LAB / ...

Axis: 0, 20, 40, 60, 80, 100, 120, 140
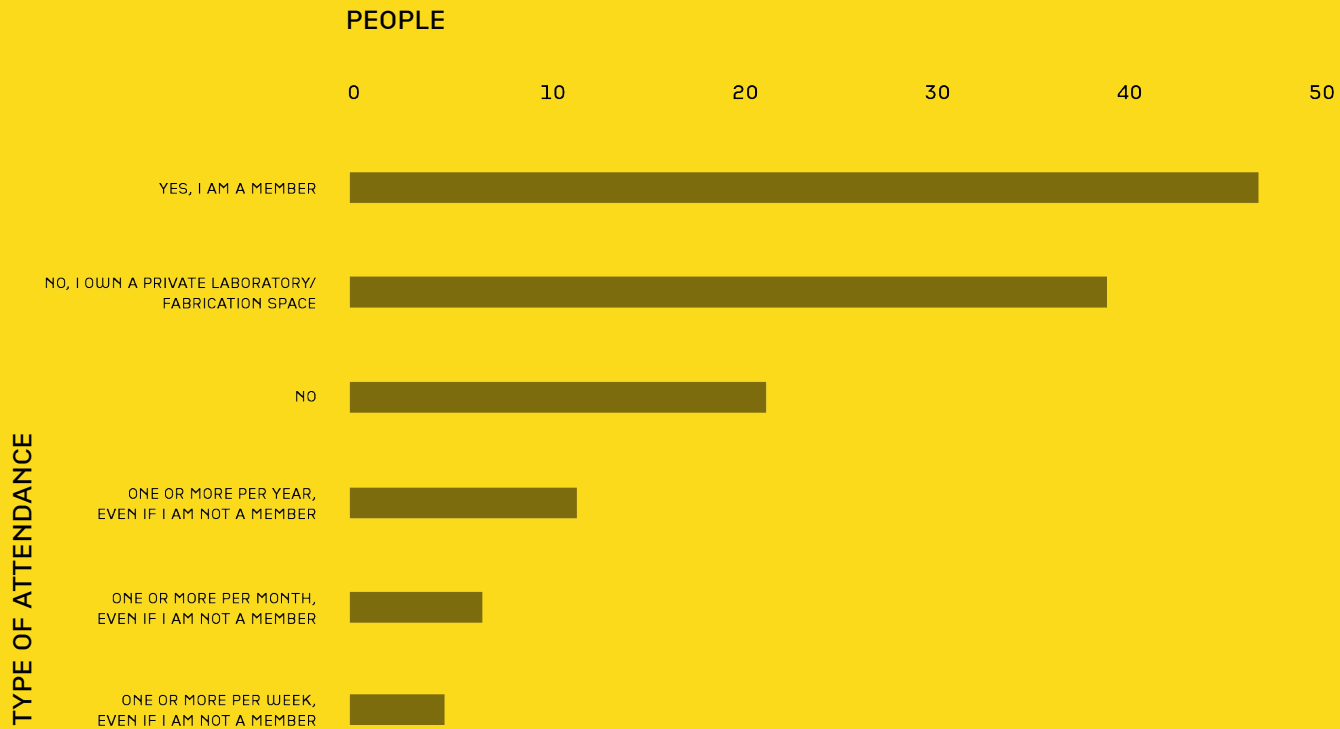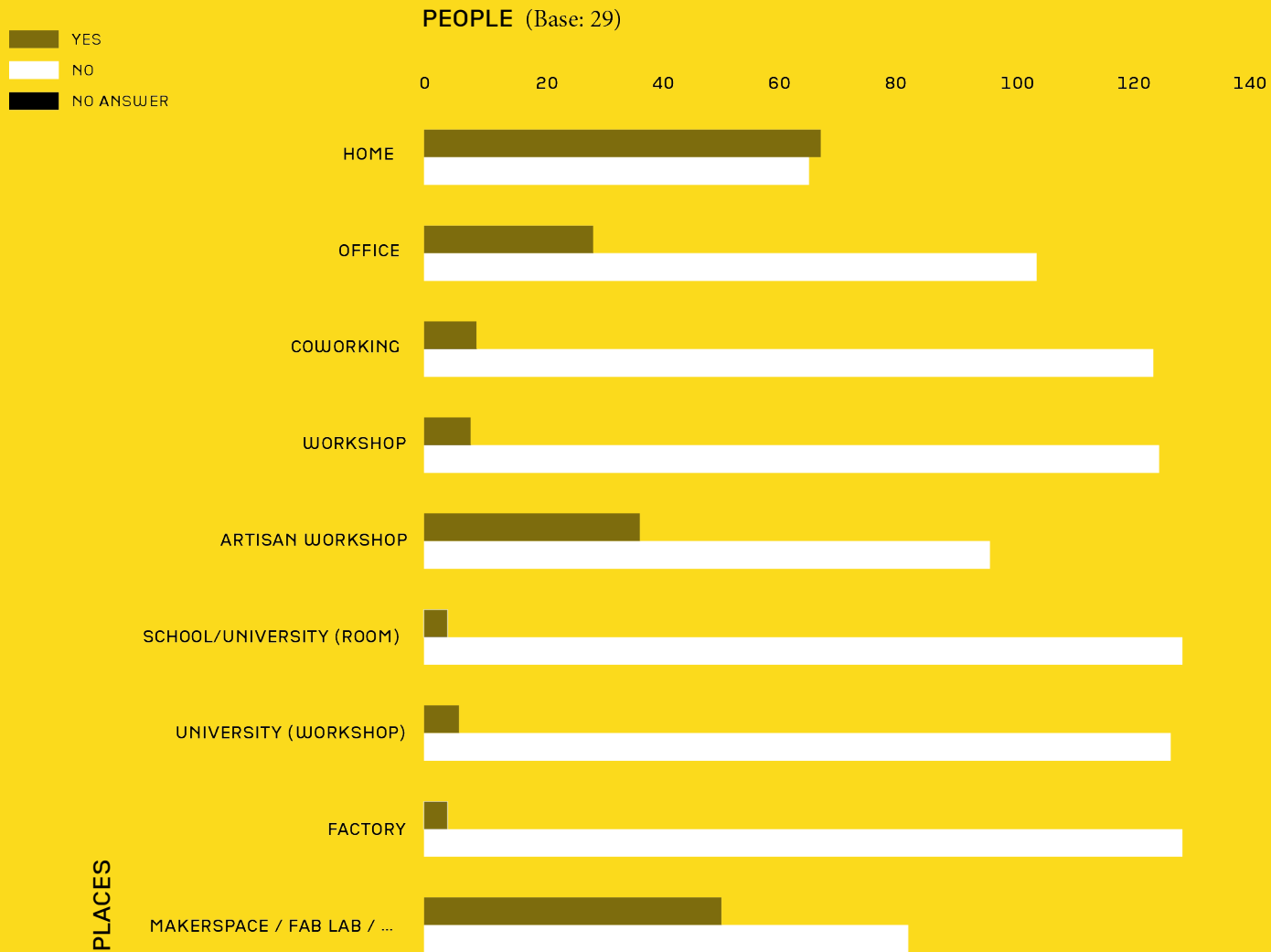
COMPETENCES: WHICH IS YOUR LEVEL OF TECHNICAL/TECHNOLOGICAL COMPETENCES?

COMPETENCES

NONE
ELEMENTARY
AMATEUR
PROFESSIONAL
GURU
NO ANSWER

PEOPLE

60
50
40
30
20
10
0

INFORMATICS
ELECTRONICS
CAD/CAM DESIGN
DIGITAL FABRICATION
ANALOGUE FABRICATION
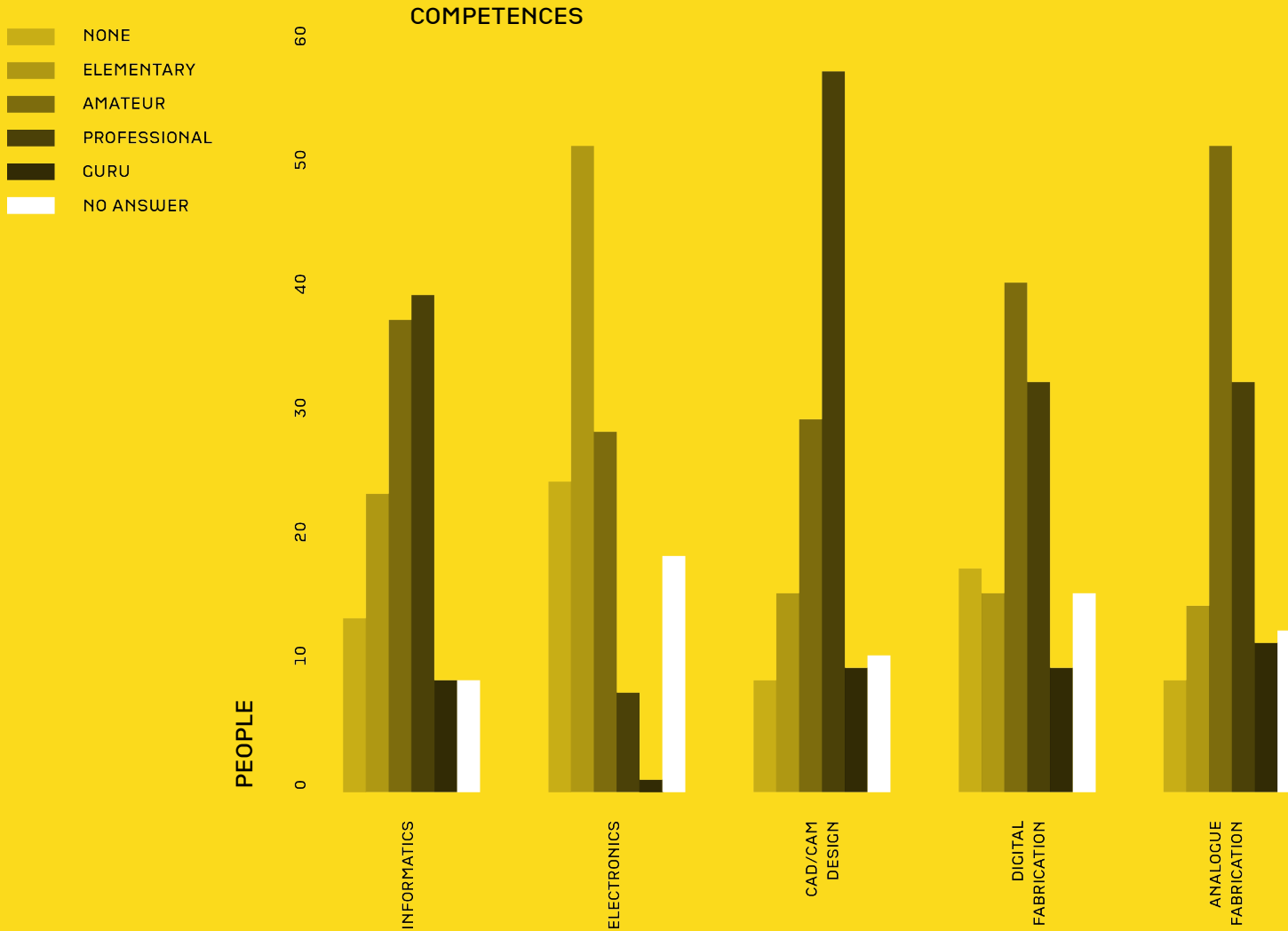
COMPETENCES: HOW DID YOU ACQUIRE THOSE COMPETENCES?

COMPETENCES

- SELF-EDUCATED
- SCHOOL/UNIVERSITY
- WORK
- OTHER
- NO ANSWER

PEOPLE

60
50
40
30
20
10
0

INFORMATICS
ELECTRONICS
CAD/CAM DESIGN
DIGITAL FABRICATION
ANALOGUE FABRICATION
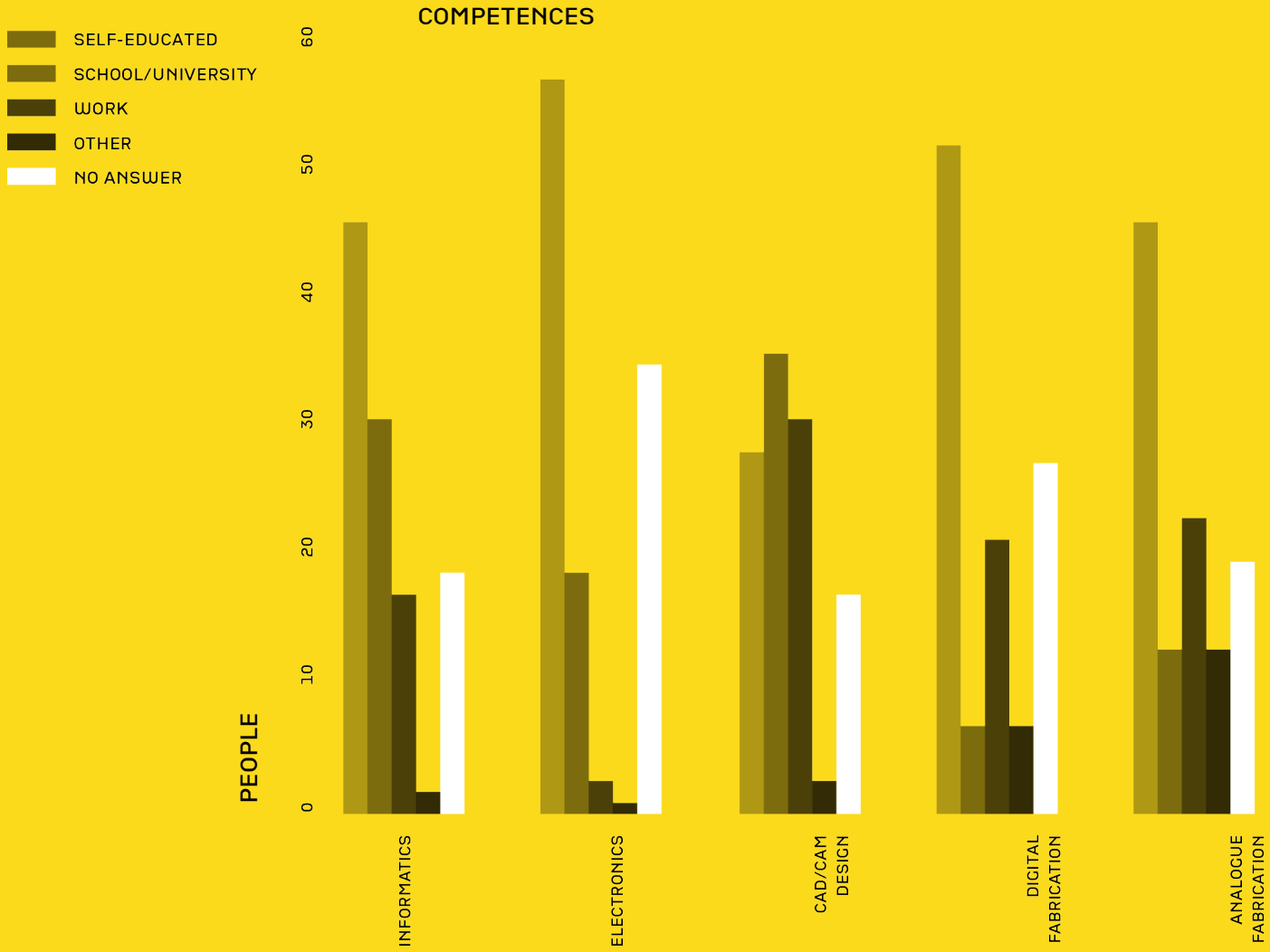
COMPETENCES: WHICH IS YOUR EDUCATION LEVEL?

PEOPLE

EDUCATION DEGREE

Education Degree	People
MASTER DEGREE	60
UPPER SECONDARY DEGREE	23
BACHELOR DEGREE	18
POST SECONDARY	11
PHD DEGREE	8
POST MASTER DEGREE	8
NO ANSWER	5
LOWER SECONDARY	1
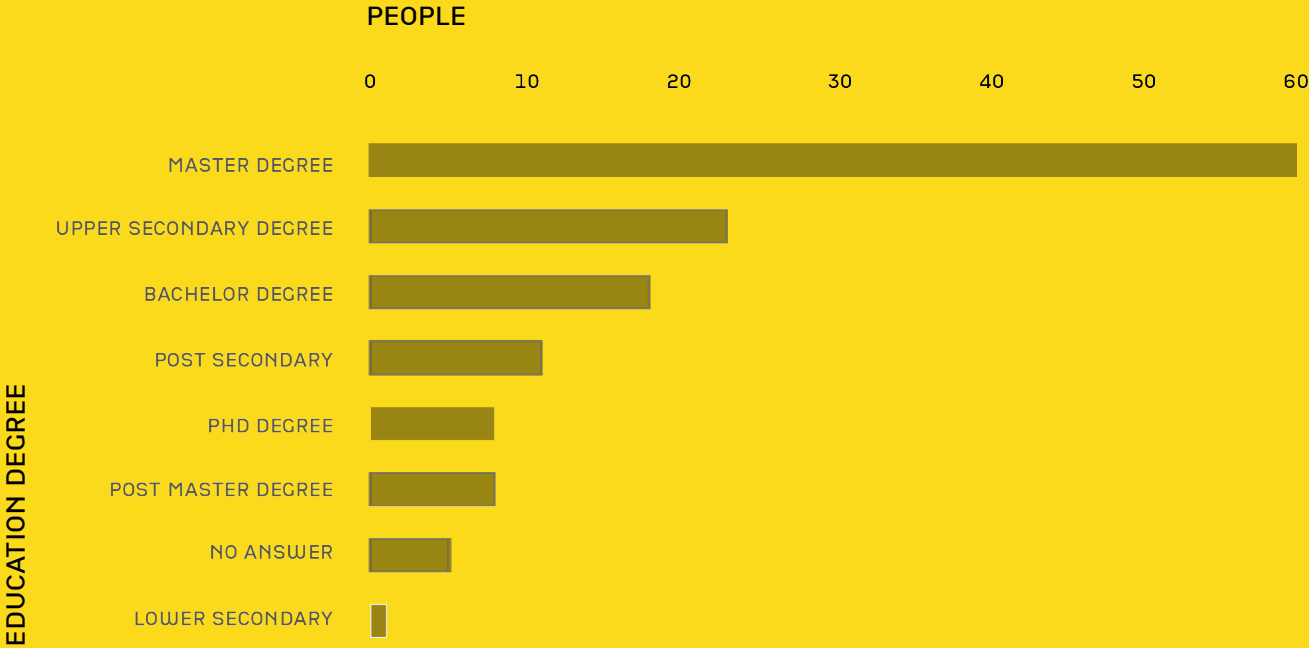
APPROACH: WHAT IS YOUR APPROACH TO DESIGN?

YES ■
NO □
NO ANSWER ■

PEOPLE

| 0 | 20 | 40 | 60 | 80 | 100 | 120 |

I CREATE MY PROJECTS FROM ZERO

I USE OR MODIFY EXISTING PROJECTS OPEN DESIGN)

I DEVELOP PROJECTS COLLABORATING WITH A COMMUNITY (CODESIGN)

I USE GENERATIVE DESIGN SOFWARES

I DEVELOP MY PROJECTS WHILE REALIZING THEM PHISICALLY (TINKERING)
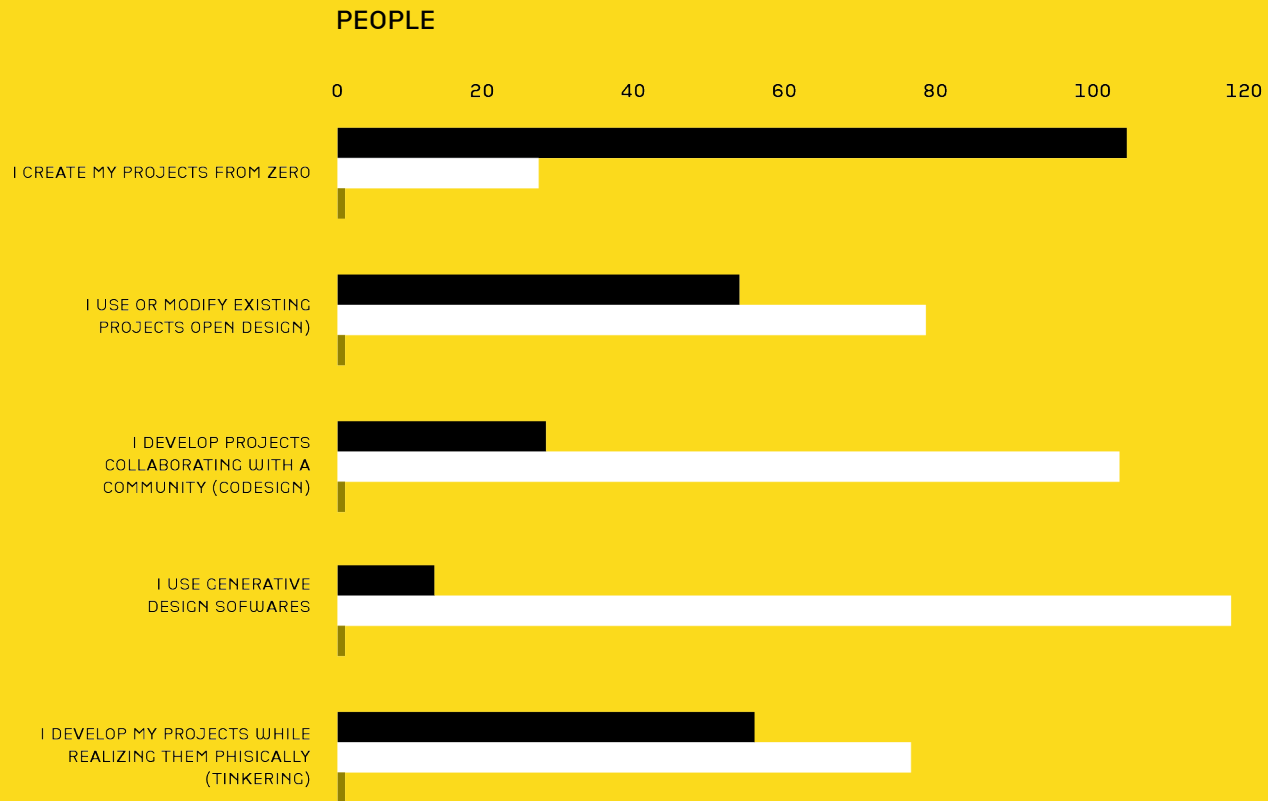
SPACES: WHICH ELEMENTS ARE PART OF YOUR SERVICE OFFER?

Legend:
- YES (black)
- NO (white)
- NO ANSWER

Y-axis: PEOPLE (0, 5, 10, 15, 20, 25)

Categories:
- ON DEMAND DESIGN SERVICES (WORKSHOP)
- FABRICATION SERVICES
- TRAINING SERVICES (WORKSHOPS AND COURSES)
- RESEARCH SERVICES
- PRODUCT DESIGN SERVICES (DESIGN WORKSHOP)
- SERVICES FOR SOFTWARE DESIGN
- SERVICES FOR TECHNOLOGY AND MACHINERY DESIGN
- SERVICES FOR REPAIRING, REGENERATING AND MAINTENANCE OF PRODUCTS AND TECHNOLOGIES
- CULTURAL EVENTS ORGANIZATION
- COWORKING SPACES

SPACES: WHICH KIND OF TRAINING DO YOU OFFER?

▬ YES
▯ NO
▬ NO ANSWER

PEOPLE (Base: 29)

	0	5	10	15	20	25

BASIC WORKSHOP/COURSES ABOUT TECHNOLOGIES

ADVANCES WORKSHOP/COURSES ABOUT TECHNOLOGIES

REPORT
(2015)

UN'INDAGINE SOCIOECONOMICA
SUI MAKER ITALIANI E SUL 'MAKE IN ITALY'

MAKERS'
INQUIRY
(ITALIA)

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ALESSANDRO CARELLI

Download:

WWW.MAKERSINQUIRY.ORG

CONCLUSIONS

CONCLUSIONS

The emergence of designers-producers opens two main issues *for design education:*

1.   **change** of *design educational* **activities**

2.   **change** of design and making **facilities** where these activities take place.

CONCLUSION#1: Change of design education #A

o **Design schools** could be **considered** as an integrated part of an **emerging production system** that *combines new and traditional design and production entities, different actors, skills and capabilities*

o The *link between schools/universities and local/ global makers communities* **can enable new kind of design educational activities** *'without borders'* (e.g. Fab Academy).

o **Strong interest in sharing, collaboration and openness** (to a lower level): most of activities consist of *personal fabrication* (DIY), but with important aspects of *collaboration* (DIWO).

o The issues of sharing, collaboration and openness could be therefore **still emerging** and relevant in order *to better coordinate activities* within *makerspaces and/or schools and universities.*

The Design schools + makerspaces / Fab Labs connection may also **facilitate** an evolutionary **leap from multidisciplinarity** (currently guaranteed by makerspaces) **to multispecialization** in terms of combination *among design, maker practice, technology and science.*

o   **Design schools and universities as 'Factories of the Future**' when *connected to makerspaces and Fab Labs.*

o   Becoming then **enabling educational environments** for *policy, organizational, economic, cultural and political dimensions.*

Few connections at the moment: an analysis conducted on the 185 Schools and Universities of Cumulus Network shows a lack of presence of makerspaces. *Only 12 makerspaces over 185* schools and universities were identified (Bianchini, Bolzan, Maffei, 2014).

Bianchini, M., Bolzan, P., & Maffei, S. (2014). (re)Designing Design Labs. Processes and places for a new generation of Designers=Enterprises. Presented at the *Nord Design 2014, Espoo, Finland / Melbourne, Australia*. Retrieved from http://www.academia.edu/8629200/
_re_Designing_Design_Labs._Processes_and_places_for_a_new_generation_of_Designers_Enterprises

Further research

1. Research the **implementation** of *connections among makerspaces / Fab Labs* with *Design schools*

2. Research the **impact** of this connection *on educational activities, organizations and places*

3. Replicate the **survey** *periodically*, as well as in *other countries*

Tomorrow @ Cumulus Milan 2015

http://bit.ly/1Jc8B9D

PRODUCTION, DISTRIBUTION AND CONSUMPTION - MANUFACTURING

DESIS Makers' Inquiry. National Investigation on Makers and Making

Friday 5th June 2015 - 14:30 - 17:00

Venue: Polifactory, Politecnico di Milano, Campus Bovisa, via Durando 10

The Project Makers' Inquiry invites you for a public presentation and debate around the results of the survey conducted on more than 130 makers around Italy.

MAKERS' INQUIRY is a project promoted and coordinated by the Department of

Design of Politecnico di Milano together with Make in Italy Foundation CDB and

Make in Italy Association. This initiative is supported by DESIS Network.

It is a 'open and replicable' research format, aiming at exploring the condition of makers who operate in a certain geographical reality. The first draft of MAKERS' INQUIRY has been tested in Italy It explores makers world from several points of view – ethnographic, economic, technological, manufacturing and design – in order to understand how this phenomenon is evolving.

It is a part of the DESIS DOP Cluster, Distributed and Open Production.

http://makersinquiry.org/it/

THANKS.
http://www.makersinquiry.org

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