

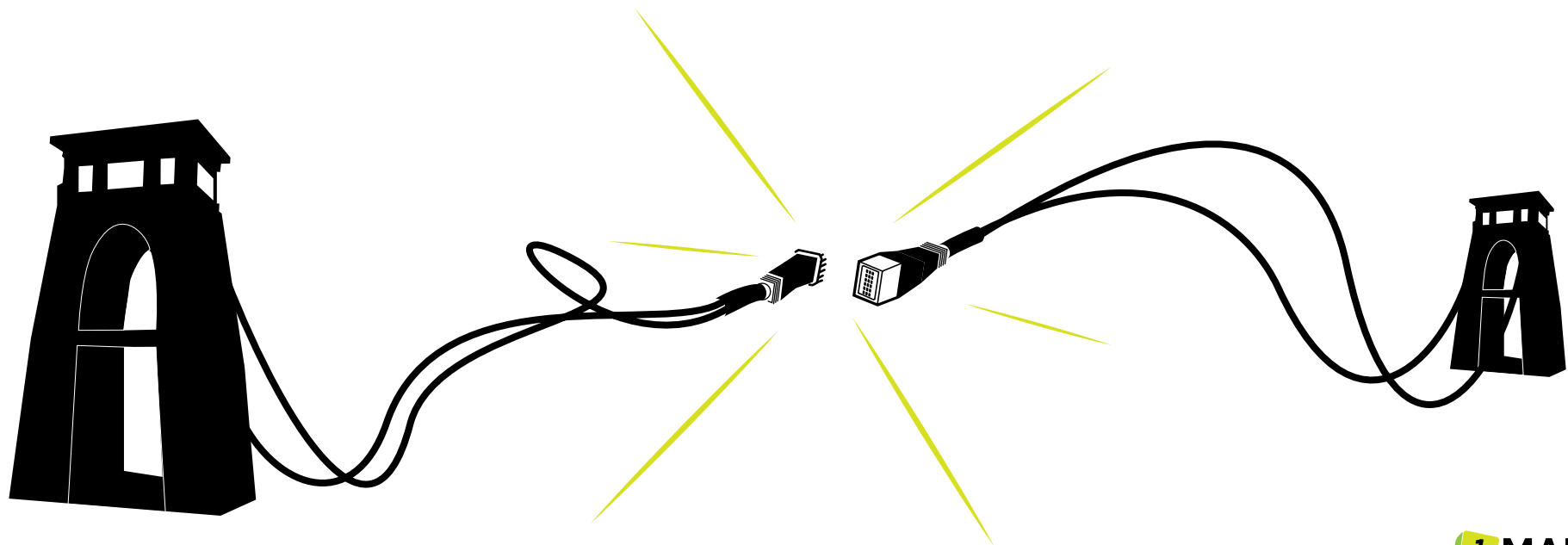
Self sufficient and productive cities



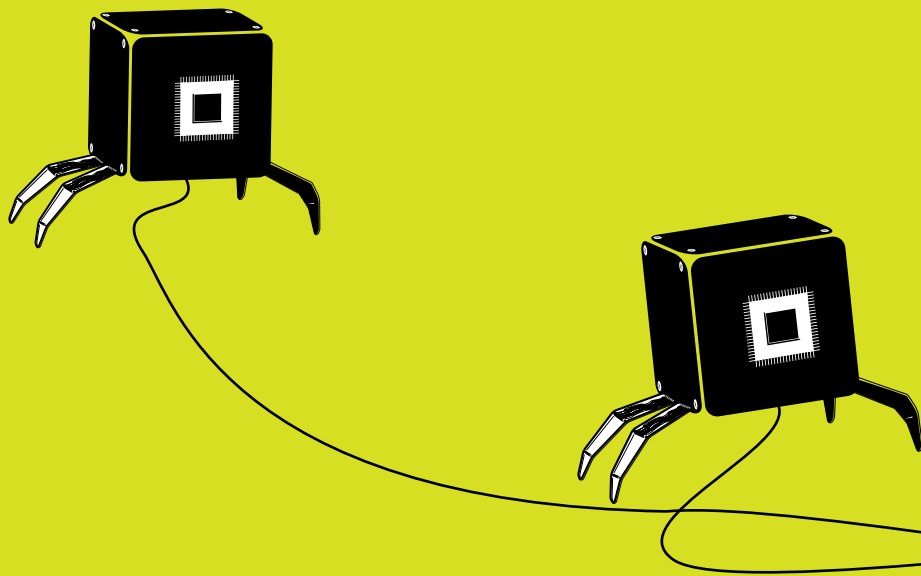
Bristol
MAKER LAB
for everyone to make it

DIY

Designing and Inventing



Personal manufacturing and digital prototyping



Bristol Maker Lab (BML)
is a public access making space
and innovation centre, one of only
two in the South West of England
outside a University.

BML is a Community Interest
Company that addresses a
citywide need for new skills
and sustainable employment.
It does this by providing open
access to digital manufacturing
equipment and expertise,
supporting a vibrant community
of green innovation, creativity
and enterprise.

For the general public, young people, artists, graduates, small and medium enterprises, Universities, and Corporate R&D and business development.

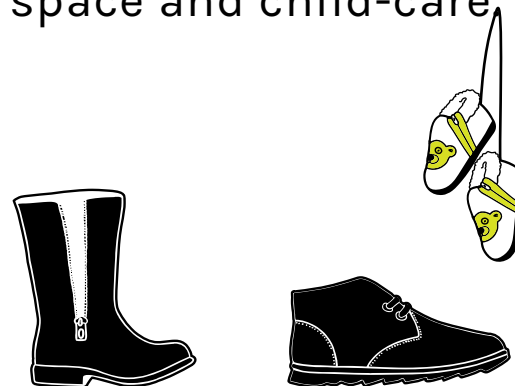


An attractive, cutting edge fabrication studio and learning centre offering access to the tools of what many are calling the "new industrial revolution"

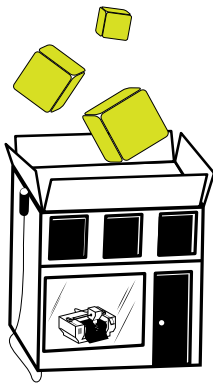
*(Makers: the new industrial revolution.
Anderson, Chris. Cornerstone, 2012)*

At BML a team of dedicated staff and outsourced experts support the largest making space in the South West, which is kitted out with a wide range of digital manufacturing equipment and traditional tools.

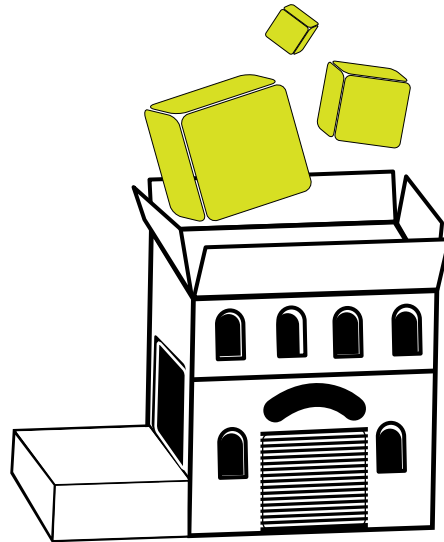
Alongside this are membership packages, workshop programmes, enterprise support, collaboration, social and retail space and child-care



BML activity takes place every day throughout the year across two locations and as a schools and libraries programme:



1 BML Central



2 BML Knowle West



3 Maker Lab in a Box

1 BML Central

A city-centre location houses activities for individuals, artists, SMEs, and University and corporate teams, with easy access to smaller scale designing and prototyping, along with collaboration space and child care. Users pay for a membership package or take up a residency funded by other organisations.

BML Central provides opportunities for wide ranging multi-disciplinary research, playing a key role in the city as "a laboratory for change and innovation".

It acts as the 'shop front' for the BML brand and products, for example, digital jewellery, design with recycled materials and 3D printed medical prosthetics.



2 BML Knowle West

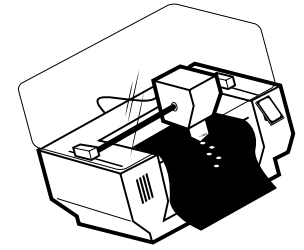
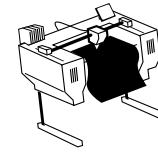
A South Bristol location, in Knowle West's new Filwood Green Business Park (completion February 2015), provides a digital manufacturing floor that is a training ground for young people and adults who want to upskill. Many of the courses are funded allowing participants to gain both practical and life skills working on live commissions with professionals.

Housing larger machinery it is suitable for larger scale work such as furniture, flat pack buildings and boats and offers prototyping and business development opportunities for a wide range of stakeholders.

BML will be a catalyst for growth and jobs in the local economy.



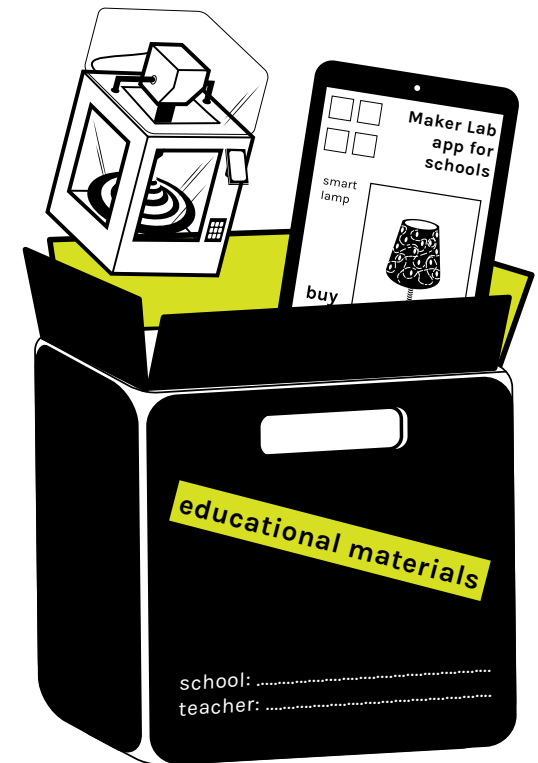
3 Maker Lab in a Box



Play, creativity, problem solving, circular economy (value chain, deconstructing objects), Internet of Things, design solutions to social issues, global citizenship.

Schools

With our mobile schools programme we will give children and young people practical experience of digital manufacturing, enhancing their awareness of the possible careers of the future at a young age (Primary), and teaching them transferable skills for employment (Secondary). This will begin in March 2015 with a year of experiments with six South Bristol schools. In three primary schools and three secondary schools we are working with teachers, artists, technologists, pupils, trainees and apprentices to find creative and innovative ways of delivering the new ICT and computing curriculums and making technology more visible in schools.



Libraries

We are working with Bristol Libraries to help them respond in creative and sustainable ways to the changed environment of public spending cuts and the implications of new digital technology. In 2015 we will develop bespoke Maker Lab experiences to suit the needs of individual libraries, starting with the Central Library and continuing across the city.



Arts Council England will continue to support Knowle West Media Centre's programme of commissioning artists to work with communities and digital media and the BML will provide exciting possibilities for us to attract new artists and develop new projects.

We will work with The Crafts Council to develop a residency programme at BML to explore digital fabrication and crafts practice to provide:

Opportunities (especially for young people) to work alongside artists, participating and contributing to a creative pool of ideas that will also support entrepreneurial activity.

Multidisciplinary programmes where artists and professionals work together to solve problems e.g. working with the health sector, surgeons collaborate with artists creating bespoke moulds for tissue restructuring.

Research

BML will host a powerful interdisciplinary learning community able to explore creative possibilities of the Future City and address environmental, social and economic challenges of the present. Based on the principles of co-design and co-production this will be a collaborative action research space.

KWMC has established strong relationships over a number of years with both the University of the West of England (UWE) and University of Bristol. KWMC has a Memorandum of Understanding with UWE and representation on the Centre for Public Engagement's steering group. KWMC is an active member of the European Network of Living Labs (ENoLL).

**Effective
member of
the European
Network of
Living Labs**

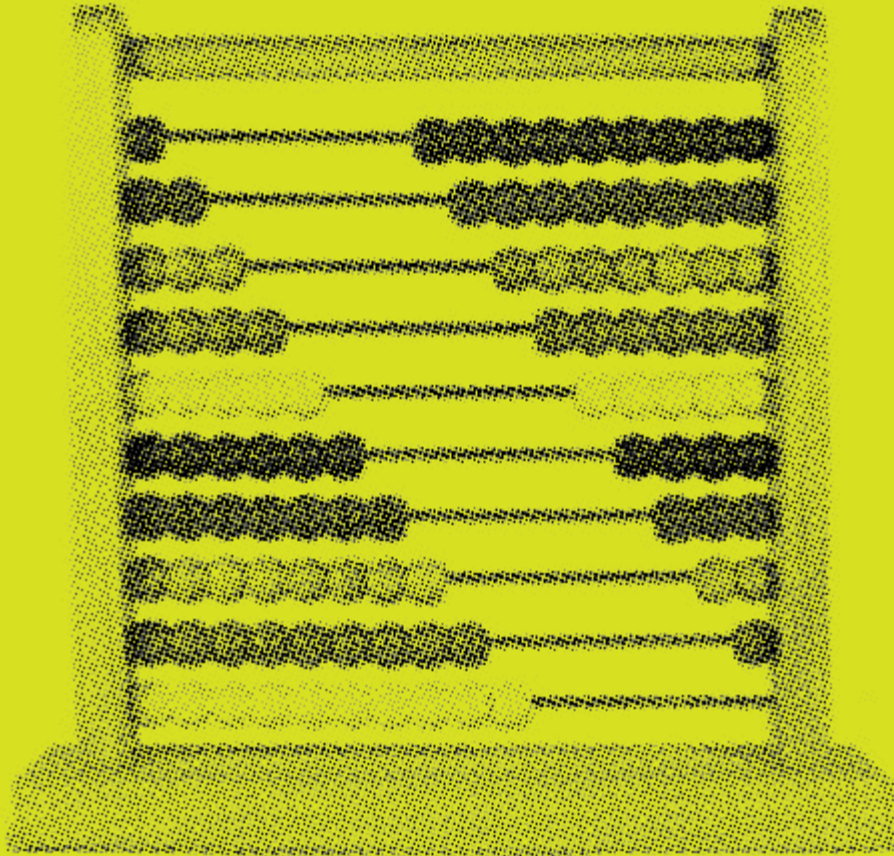
Current research projects.

KWMC and the University of Bristol are currently in partnership on a number of research projects including Sensor Platform for Healthcare in a Residential Environment, which will develop home sensor systems to monitor the health and wellbeing of the people living at home.



The Girls Making History project is developing wearable technology and digital platforms to challenge and highlight abuse in teenage relationships.

Finance



With £3 million start-up costs, financial projections indicate that the Bristol Maker Lab will reach sustainability within three years.

Part of the revenue will be generated from the income streams of membership fees, workshop programmes, bureau services, materials shop and schools packages.

The remainder will be sourced from public services, including young people's training, SME support, and artist and research residencies.

Corporate sponsorship is also considered to be a potential additional income stream.

MAKLab, Glasgow

Set up in 2010. Social enterprise

- £ **Revenue:** membership, pay as you go service, workshops, Creative Scotland grant to Glasgow City Council.
- 🎯 **Aim:** Reduce the inherent costs associated with prototyping and manufacturing, supporting startups to develop, grow and bring innovative services, products and ideas to the forefront of Scottish Industry.
- 👤 **Users:** 240 members, 1000 users annually - students or recent graduates, SMEs, individuals, training course attendees.
- S **Staff:** 2 full time, 2 part time, and 2 key volunteers. Architects, architecture graduates and product designers
- 🔧 **Space :**
 - **City centre Studio.** Dedicated teaching and workshop spaces, co-working design office.
 - **Larger scale commercial unit.** Rented 12,000sqft
 - **Mobile MAKLab for education.** Selected pieces of equipment are crated and delivered to schools and libraries for a week of public access workshops.



Manchester Fab Lab

First in the UK set up in 2010. Non-profit project.

- £ **Revenue:** prototyping services and machine hire.
- 🎯 **Aim:** Inspire the next generation of entrepreneurs, engineers and manufacturing talent.
- 👤 **Users:** 2,500 over three years: small manufacturers, inventors, schools and community groups
- S **Staff:** Small, skilled team with qualifications and experience in mechanical engineering, product design and electronics.

🔧 **Space:** 200 sq m

Who we are networking with:



TechShop, Inc. US

Opened 2006, California. Membership-based franchise, 10 locations across the US.

- \$ **Revenue:** memberships, workshops, sponsorship.
- 🎯 **Aim:** "Democratising access to the tools of the next industrial revolution."
- 👤 **Users:** 6,000 members: Hobbyists, artists, entrepreneurs, tinkerers, crafters, scientists, and students of all ages (16+) and skill levels.

S **Staff:** 'Dream Makers'

🔧 **Space:** 6,000 - 20,000 sq ft

Hackspace

Hackspace (UK) or Hackerspaces (US), are an informal global network of non-profit membership clubs.

Bristol Hackspace - BV Studios, Bedminster:

- £ **Revenue:** minimal membership fee and pay-what-you-can.
- 🎯 **Aim:** Committed to the principles of Open Source and Open Knowledge.
- 👤 **Users:** 40: 99% male focusing on engineering
- 👤 **Staff:** managed by committee
- 📏 **Space:** 2,000 sq ft.

Makernow, Cornwall



University of Falmouth Design Centre, Automatic research group, Falmouth University AIR project.

- £ **Revenue:** pay as you go equipment and staff hire, commercial IP rights protection, workshops. Funded through the ERDF and the ESF.
- 🎯 **Aim:** Inspire and support individuals, communities or businesses who want to use digital tools to achieve their goals.
- 👤 **Users:** 40 - Artists, designers, students, graduates, professionals.
- 👤 **Staff:** One full time Manager, who is Associate Professor of Digital Craft at Falmouth University. Two part time freelance staff with product design, digital manufacturing, technology and software experience.
- 📏 **Space:** 300 sq ft within University Falmouth design centre



Makespace Cambridge Ltd

Opened 2013.

- £ **Revenue:** Memberships and sponsorship including Microsoft Research.
- 🎯 **Aims:** Support existing and new businesses; to raise awareness of and skills in engineering and manufacturing.
- 👤 **Users:** 200 members 99% male engineers. Prototyping industry, consultants, businesses and educational communities
- 👤 **Staff:** Volunteers.
- 📏 **Space:** 5,000 sq ft.
- 😞 **Gaps in delivery:** Lack of female membership. Lack of public engagement.



Barcelona Fab Lab

Barcelona's municipal authority is providing a network of fabrication spaces in the city and has made it a key policy. The city sees it as a way to tackle high unemployment by providing opportunities for creativity, self-employment and invention for its young people. In July 2014 it held the 10th International Fab Lab Conference, which had 4,000 visitors and the theme 'From Fab Labs to Fab Cities'.



Enterprise - opening doors

We envision BML brokering relationships between the general public and the hundreds of engineering firms in the city who typically operate business to business.

BML will provide its users with support from idea to prototype, followed by introductions to engineering firms to produce finished batches across a spectrum including metal pressing, injection moulding and high end laser cutting.

The Laser House Ltd **South Bristol Laser cutting, design and training**

"Currently I don't have a machine big enough for half of the jobs I'm given. Being based in a Maker Lab in Bristol would make it possible for me to be more self-sufficient and offer a broader range of services. Having access to all of these tools under one roof would also help to open the door for valuable collaborations."

Fiona Dowling, Director





HORSTMANN

Horstmann - Secure Controls (UK) Ltd Producers of Heating and Hotwater controls, South Bristol

"Having a community of creative talent with facilities to prototype situated locally would be a great opportunity for us to dip in and out of, using these facilities to support our development programmes. The idea of creative workshops to expand the thinking of our development teams and to support particular problem solving could be a real benefit to us."

Dave Budworth, Portfolio Manager



ALAGO
The Gap of Success is the Head of the game

Alago Ltd, Bristol and Bath Science Park Heated Glove and high tech fabric products

"We prototype new designs and products continuously and find it frustrating that the services we need are not in our city. Having the ability to build and test using a variety of specialised equipment is invaluable and leads to faster growth and the start of more home grown businesses."

Tony Curtis, Managing Director

BML Staff



Organisational Management - operations, finance and marketing.

Creative Team - managing the vision of the business and the creativity within.

Skills and Education - Technical training and innovation prototyping, Schools and young people.

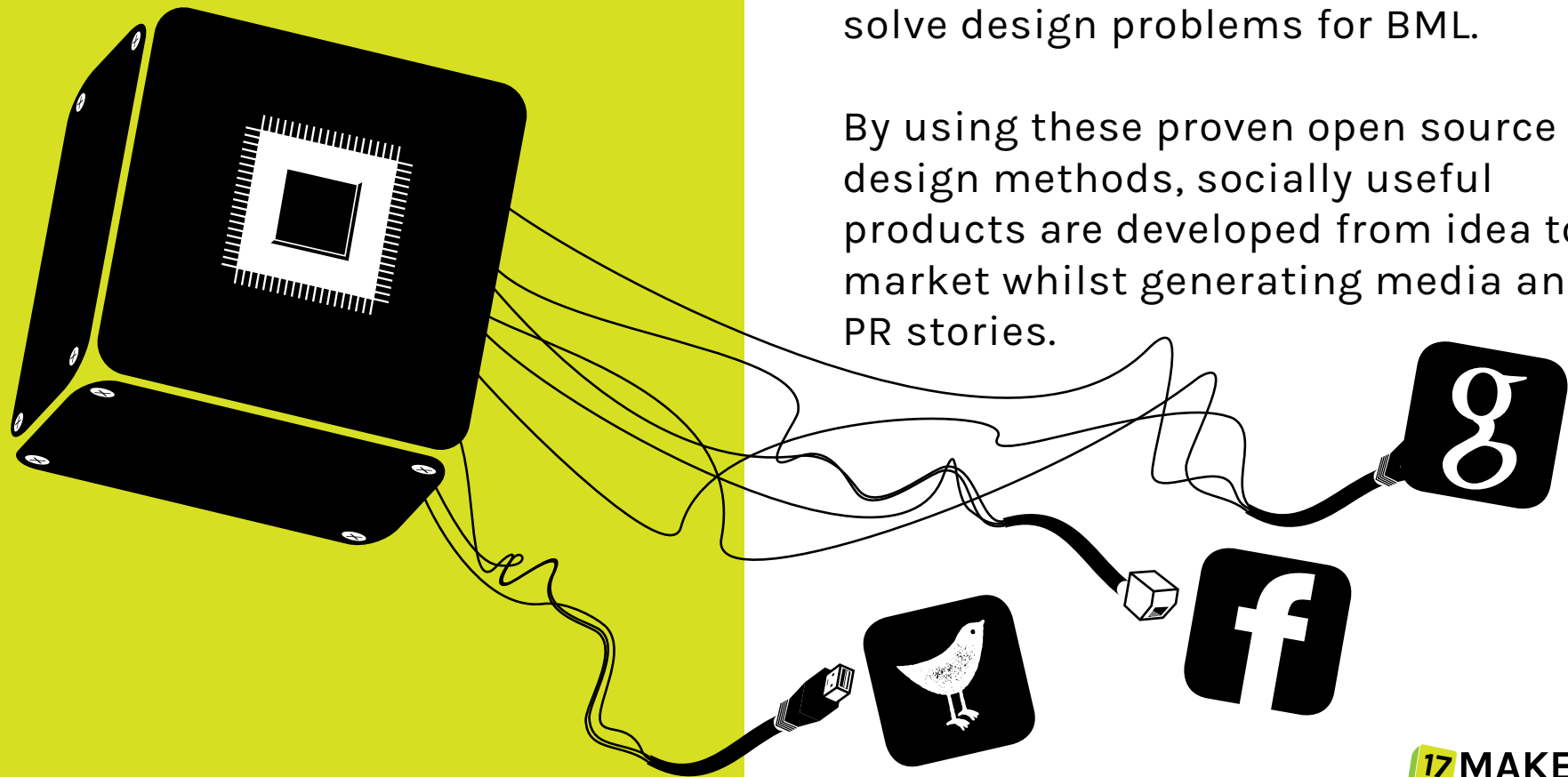
Support team - developing enterprise and taking products to market.

Branding & Digital Marketing strategy

Digital community development:
A consistent online and social media presence of video tutorials provides practical teaching and a continuous conversation with a local, national and international community.

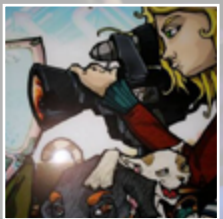
Regular challenges are given to the online community asking them to solve design problems for BML.

By using these proven open source design methods, socially useful products are developed from idea to market whilst generating media and PR stories.



Examples of what we're already doing

KWMC Young People's Programme



KWMC @YouthProgramme offers progression routes for ages 10-25 into meaningful employment in the creative and digital sectors. We work at four main levels: engagement; skills development; training for employment; supported employment. We have developed strategic partnerships with local primary and secondary schools. We work with them over an academic year to develop bespoke provision to support their ICT curriculum delivery.

Pop up Furniture Factory in Knowle West

KWMC has been working with Bristol City Council and design agency 00:/ to develop a creative approach to delivering the new furniture for the Filwood Green Business Park, which opens in February 2015.

This forges real relationships between the business park and the local community, and builds the foundations of BML with a mini CNC factory.

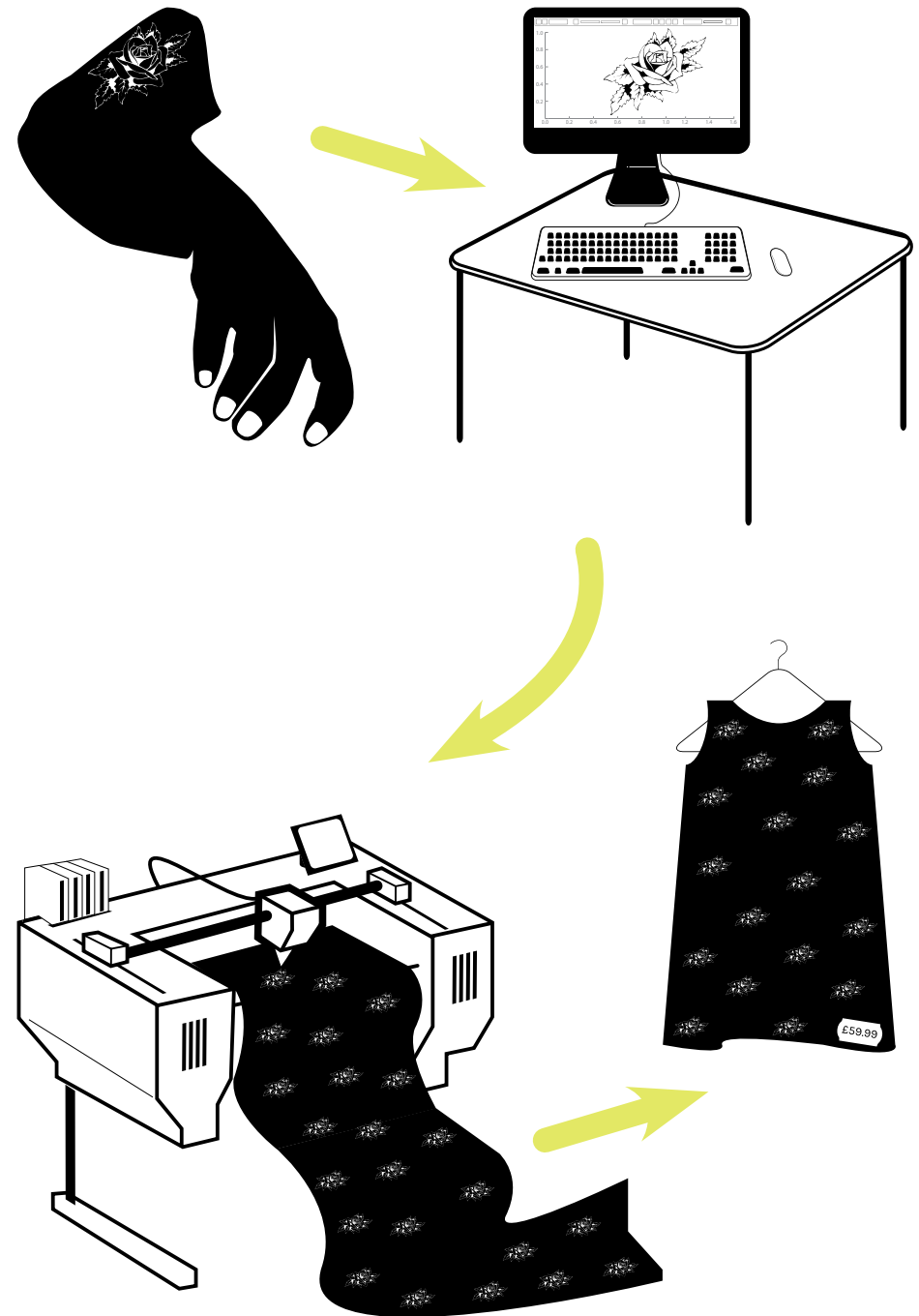


Chair by Christian Desilev. Photo courtesy of www.opendesk.cc

Digitally fabricated objects from tattoos

'I Will Always Have You' engages with the public in Knowle West and documents their tattoos. With Bristol digital agencies KWMC has created a Mobile Tattoo Parlour, which catalogues people's body art.

In the second stage artists are working alongside local people to develop small-batch digitally fabricated objects. The products will form part of an exhibition and fayre during Autumn/Winter 2014.



KWMC works collaboratively, and has built long-standing relationships as a result of over 18 years of working in South Bristol, across the city, the region and throughout Europe.

KWMC's work takes place through dynamic and bespoke engagement, which is effective on the scale of individuals and families as well as large organisations and corporations.

As this US example illustrates "honeycombs are resilient structures that efficiently enable many individuals to access, share, and grow resources among a common group." By establishing the Bristol Maker Lab, KWMC believes it can enable and strengthen the resilient collaborative economy of the city of Bristol.





Bristol MAKER LAB

for everyone to make it



EUROPEAN UNION
Investing in Your Future
European Regional
Development Fund 2007-13



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**ARTS COUNCIL
ENGLAND**



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