

Cities & Regions: Sustainability, Innovation & Transformation

3rd November 2014

Sustainable Innovation 2014

KADK

Copenhagen, Denmark

Professor Martin Charter

The Centre for Sustainable Design ®

University for the Creative Arts (UCA)



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R. Palmer

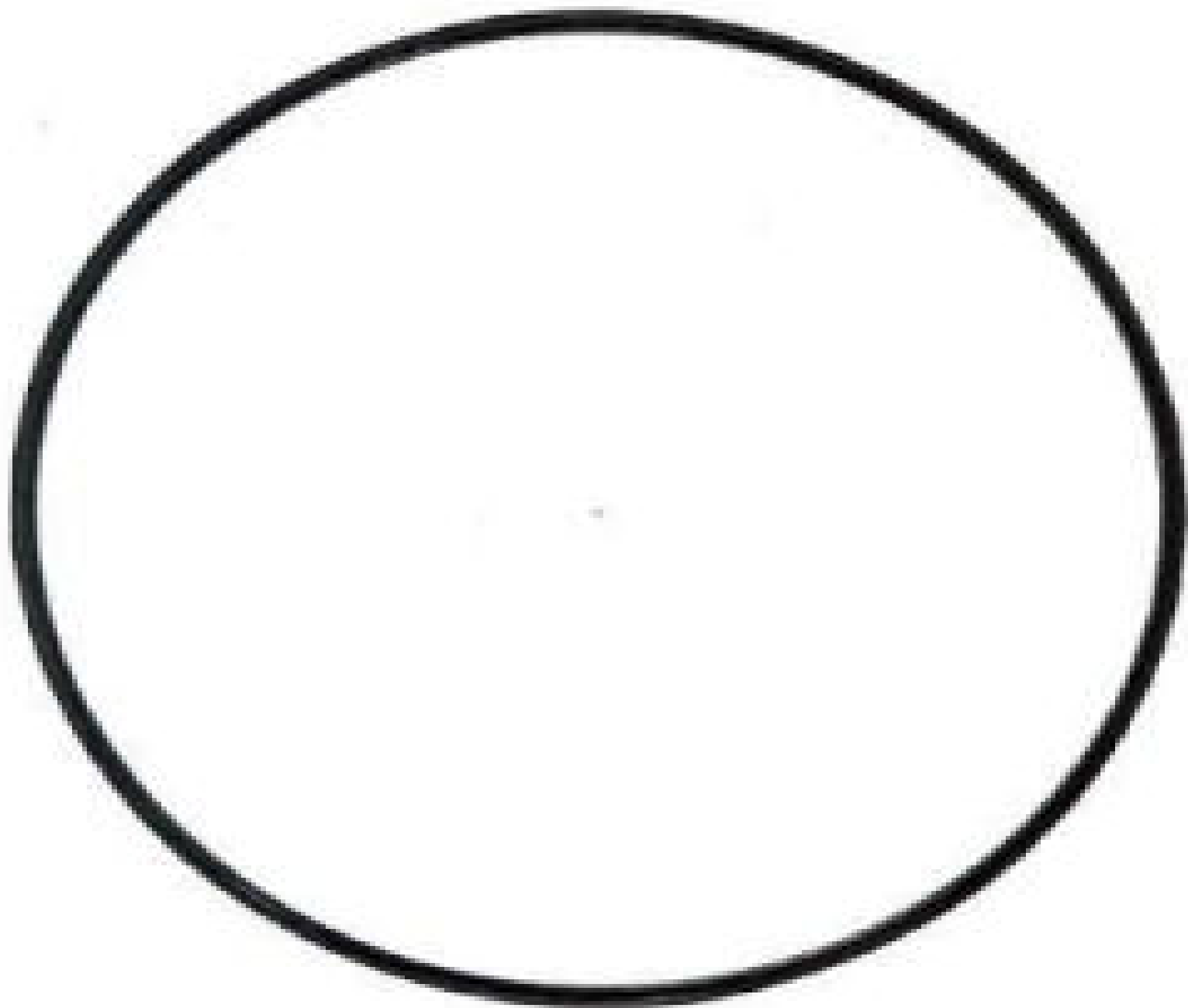














Transformation or Transition

(R)evolution or Evolution



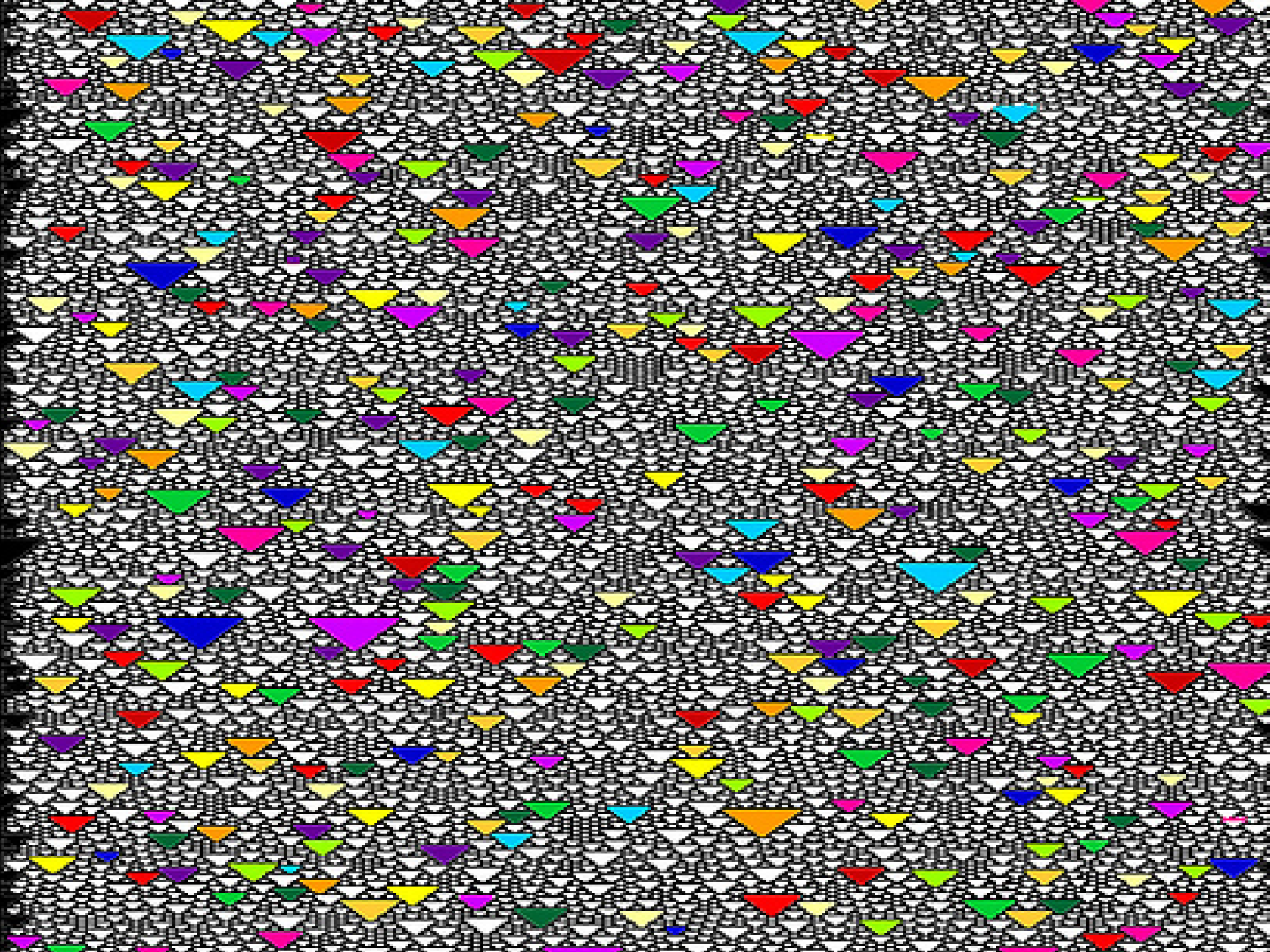
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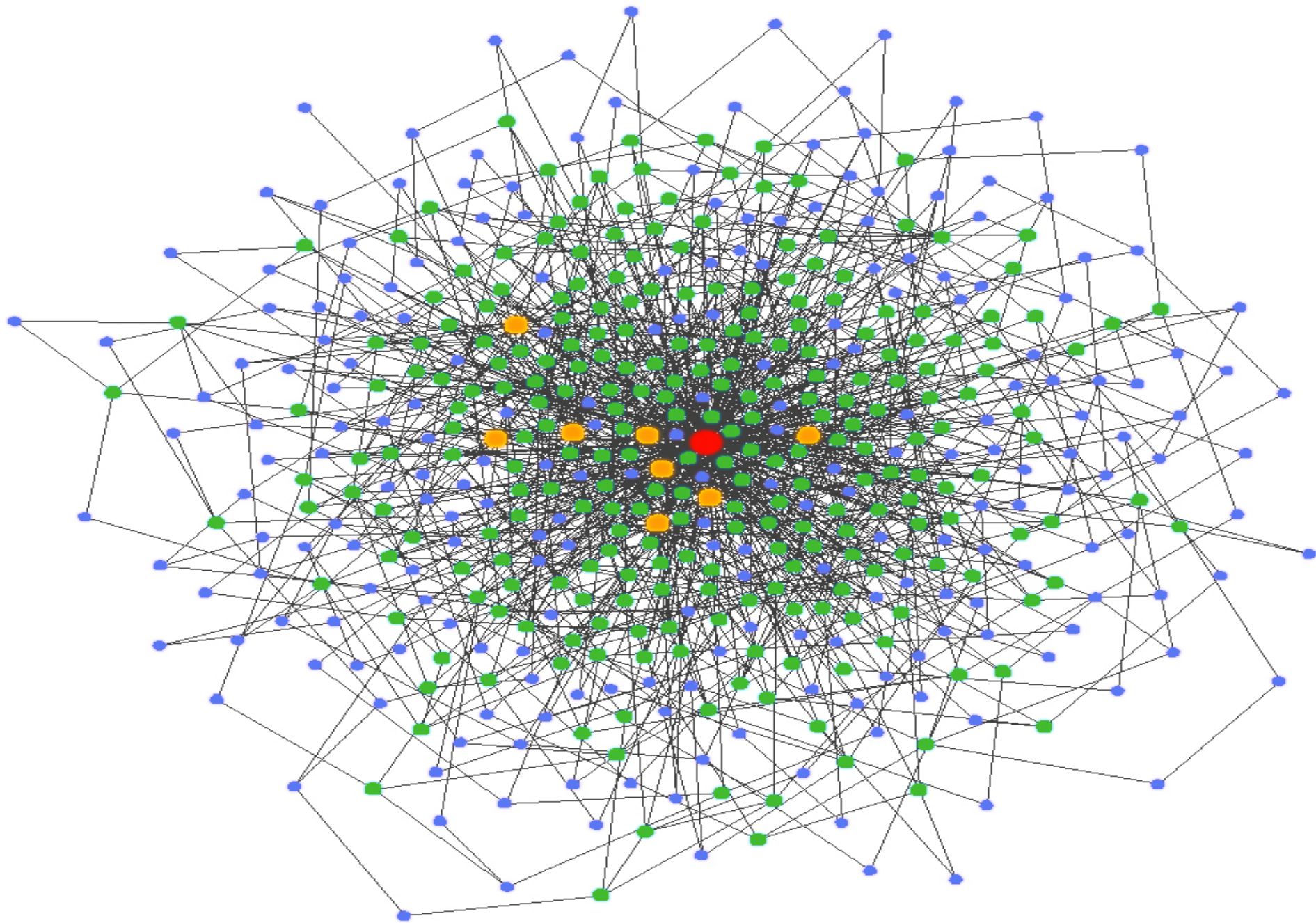


TOP DOWN

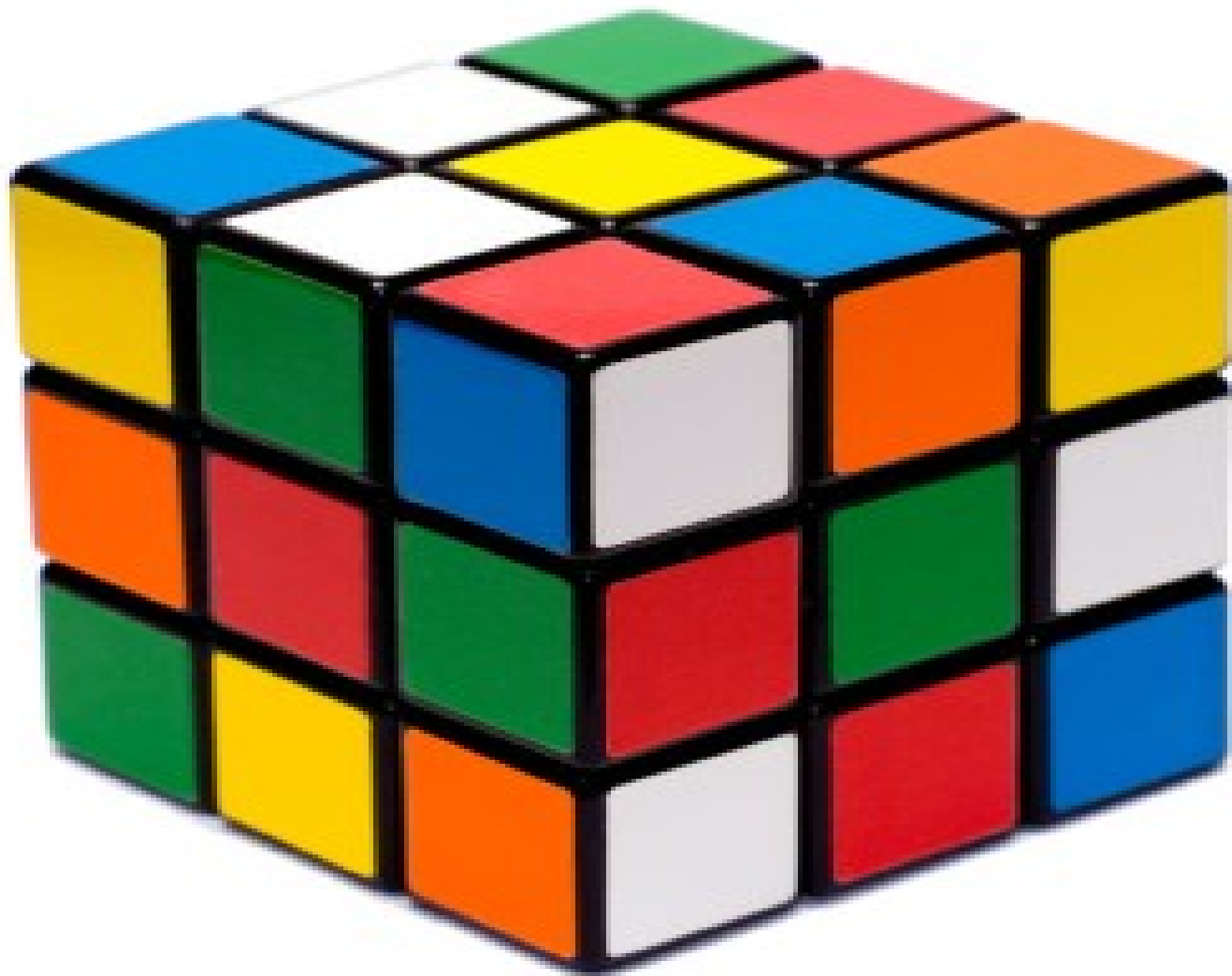
BOTTOM UP











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CISCO™

SIEMENS

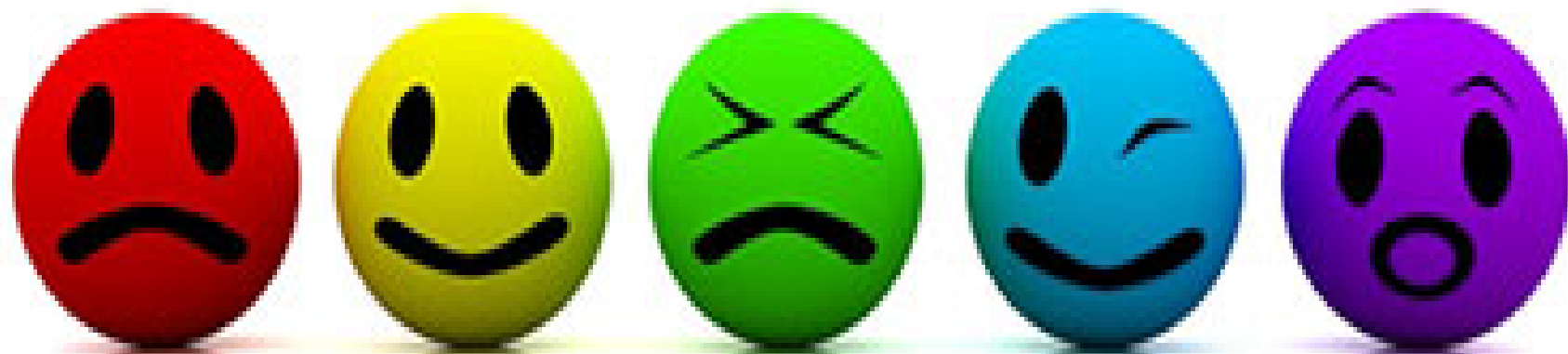




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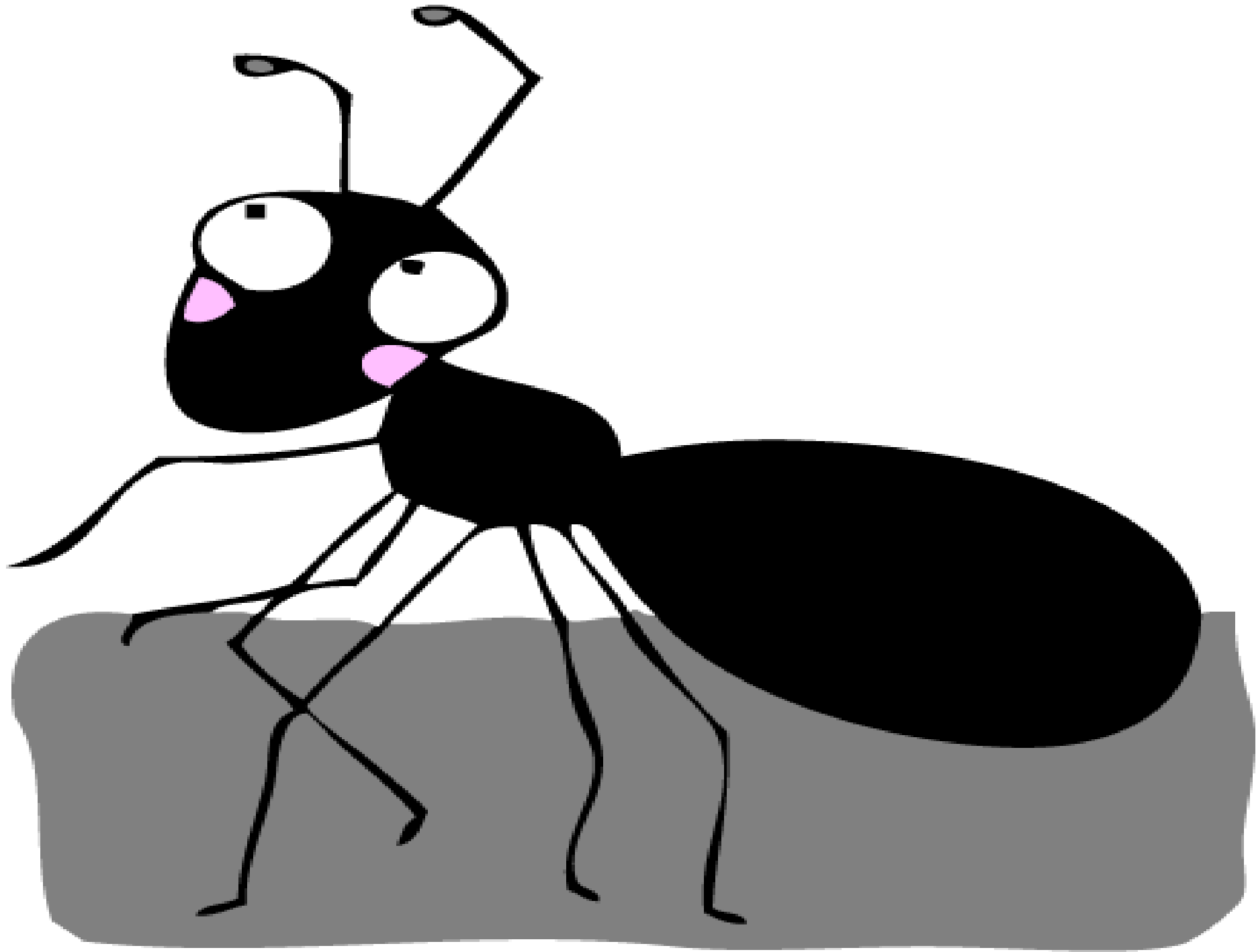




OPEN

24 HOURS





Industrialisation 4.0

Knowledge

Decentralisation



IFIXIT

WE HOLD THESE TRUTHS TO BE SELF-EVIDENT

SELF-REPAIR MANIFESTO:

REPAIR IS BETTER THAN RECYCLING.

MAKING OUR THINGS LAST LONGER IS BOTH MORE EFFICIENT AND MORE COST-EFFECTIVE THAN MINING THEM FOR RAW MATERIALS.

REPAIR SAVES THE PLANET.

EARTH HAS LIMITED RESOURCES AND WE CAN'T RUN A LINEAR MANUFACTURING PROCESS FOREVER. THE BEST WAY TO BE EFFICIENT IS TO REUSE WHAT WE ALREADY HAVE!

REPAIR SAVES YOU MONEY.

FIXING THINGS IS OFTEN FREE, AND USUALLY CHEAPER THAN REPLACING THEM. DOING THE REPAIR YOURSELF SAVES SERIOUS DOUGH.

REPAIR TEACHES ENGINEERING.

THE BEST WAY TO FIND OUT HOW SOMETHING WORKS IS TO TAKE IT APART!

IF YOU CAN'T FIX IT, YOU DON'T OWN IT.

REPAIR CONNECTS PEOPLE AND DEVICES, CREATING BONDS THAT TRANSCEND CONSUMPTION. SELF-REPAIR IS SUSTAINABLE.



REPAIR CONNECTS YOU WITH YOUR THINGS ◊ REPAIR EMPOWERS AND EMBOLDENS INDIVIDUALS
REPAIR TRANSFORMS CONSUMERS INTO CONTRIBUTORS ◊ REPAIR INSPIRES PRIDE IN OWNERSHIP
REPAIR injects SOUL AND MAKES THINGS UNIQUE ◊ REPAIR IS INDEPENDENCE
REPAIR REQUIRES CREATIVITY ◊ REPAIR IS GREEN ◊ REPAIR IS JOYFUL
REPAIR IS NECESSARY FOR UNDERSTANDING OUR THINGS ◊ REPAIR SAVES MONEY AND RESOURCES

WE HAVE THE RIGHT:

TO OPEN AND REPAIR OUR THINGS WITHOUT VOIDING THE WARRANTY
TO DEVICES THAT CAN BE OPENED ◊ TO ERROR CODES AND WIRING DIAGRAMS
TO TROUBLESHOOTING INSTRUCTIONS AND FLOWCHARTS
TO REPAIR DOCUMENTATION FOR EVERYTHING ◊ TO CHOOSE OUR OWN REPAIR TECHNICIAN
TO REMOVE 'DO NOT REMOVE' STICKERS ◊ TO REPAIR THINGS IN THE PRIVACY OF OUR OWN HOMES
TO REPLACE ANY AND ALL CONSUMABLES OURSELVES
TO HARDWARE THAT DOESN'T REQUIRE PROPRIETARY TOOLS TO REPAIR
TO AVAILABLE, REASONABLY PRICED SERVICE PARTS

INSPIRED BY MISTER JOLOPP'S MIKER'S BILL OF RIGHTS AND PLATFORM 275 REPAIR MANIFESTO

iFixit

JOIN THE REPAIR REVOLUTION AT IFIXIT.COM

Brand/Model	Year	Score	Notes
HTC Surround	2010	5	<ul style="list-style-type: none">Battery is relatively easy to replace.Accessing the internal MicroSDHC card voids the warranty.Very difficult to access the front panel and LCD for replacement.
Motorola Droid 4	2012	4	<ul style="list-style-type: none">LCD and front glass are not fused and can be replaced individually.Tons of adhesive seals the phone and its components.Replacing the front glass requires complete phone disassembly.
Motorola Droid RAZR	2011	4	<ul style="list-style-type: none">Battery is relatively easy to replace.All plastic frames and casings are incredibly tedious to remove.The front panel is adhered to the display.
Apple iPhone	2007	2	<ul style="list-style-type: none">Standard Phillips screws used throughout.Hidden clips make it nearly impossible to open rear case without damaging it.Soldered battery is very difficult to replace.
HTC One	2013	1	<ul style="list-style-type: none">Solid external construction improves durability.Virtually impossible to open without extreme damage to rear case.Battery is buried under motherboard and adhered to midframe.

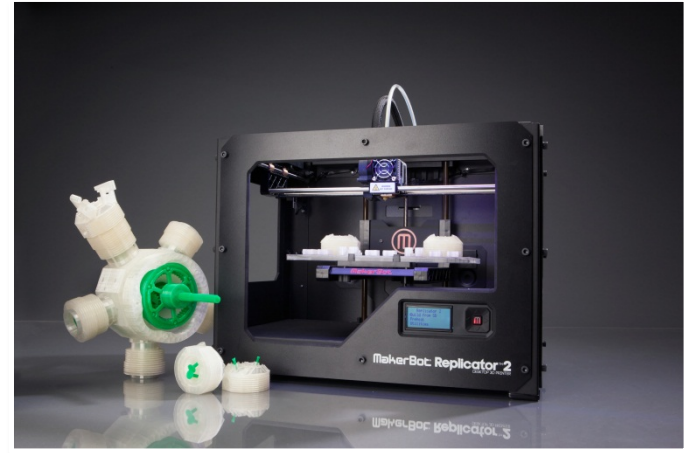
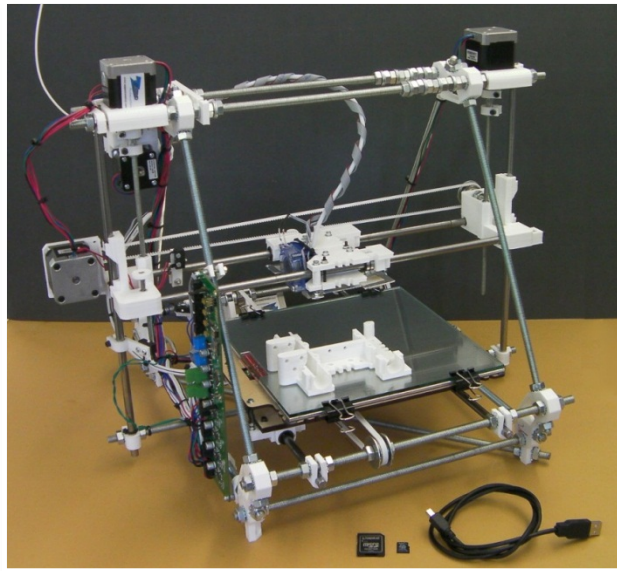
http://www





3D Printing

RepRap



MakerBot
INDUSTRIES

 **Thingiverse**



Places & Spaces



Fablabs

134 Fabrication
Laboratories (Fab Labs)
in 34 countries

Member facilities typically
include:

- Lazer-cutters
- Plasma-cutters
- Rapid prototyper, ie 3D
printer

6 UK Fablabs



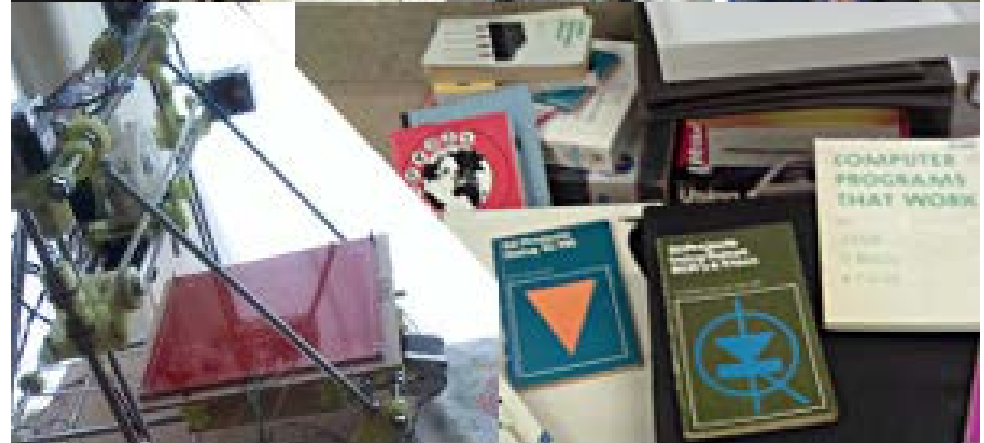
Makerspaces



1084 Global

16 China

60 UK



SURREY <http://sh-hackspace.org.uk>
HAMPSHIRE
HACKSPACE

*a place to tinker, develop,
hack, create, explore, share,
make and collaborate*



Repair Café



700 Repair Cafes
15 in UK

















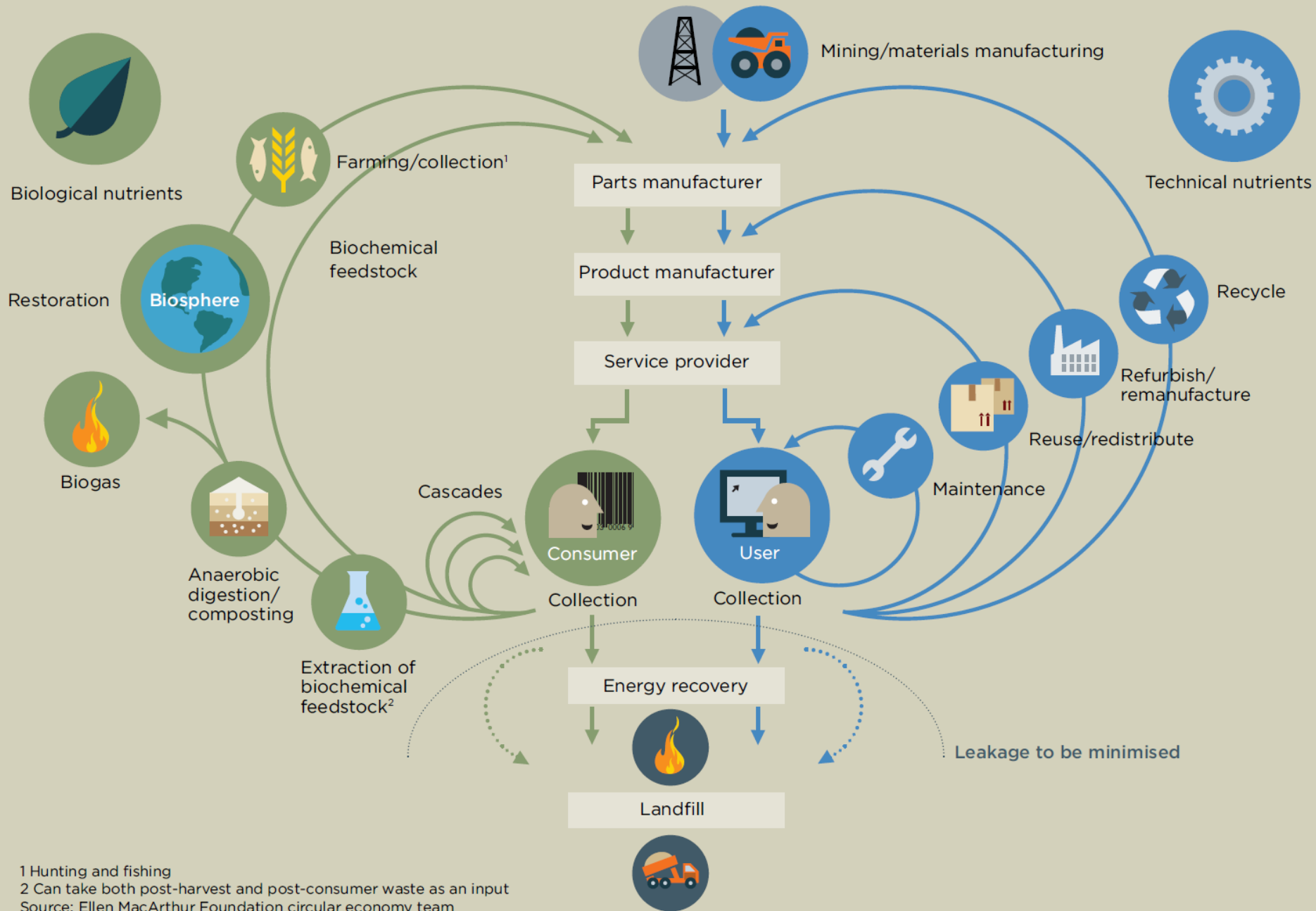


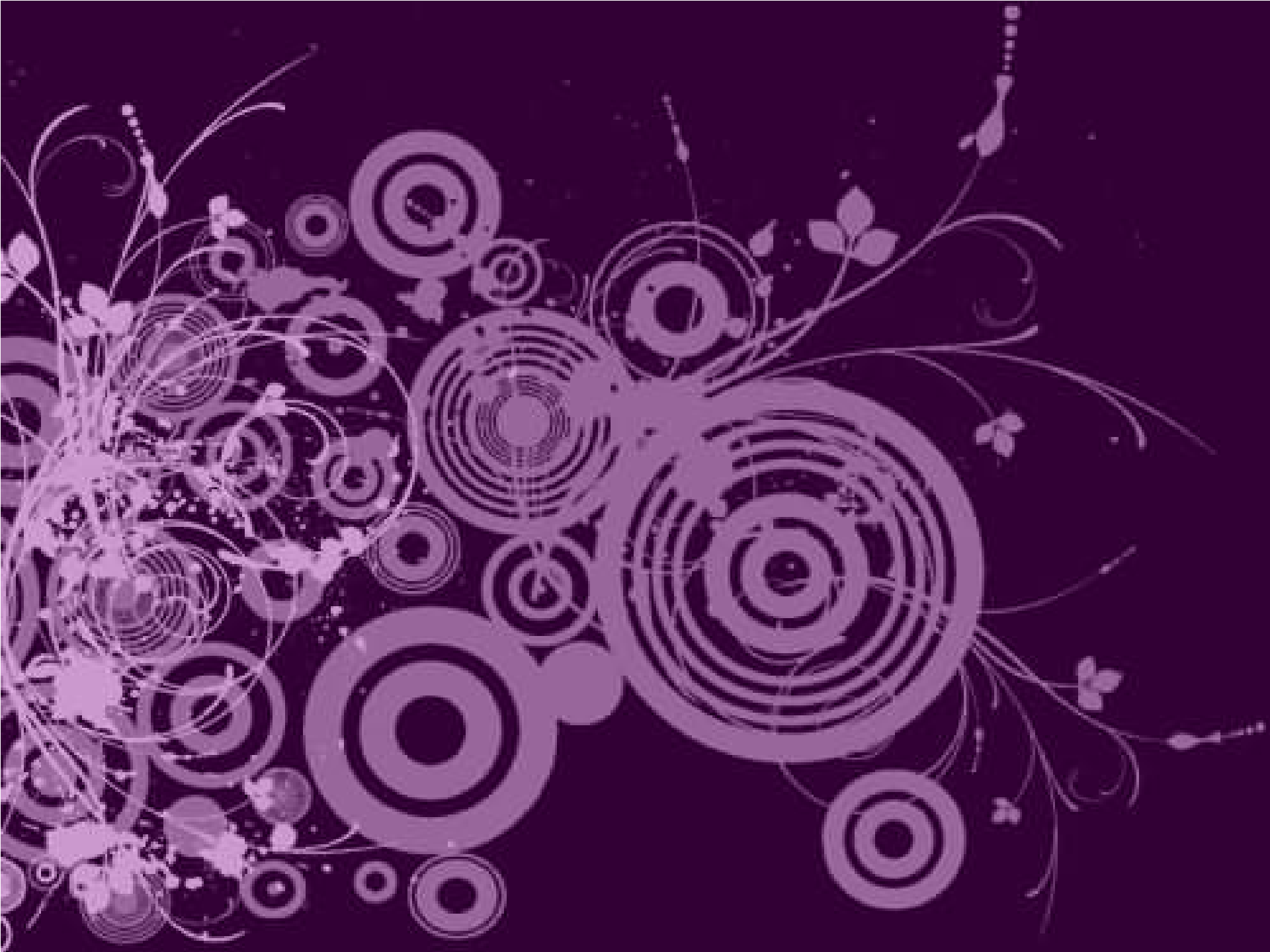






FIGURE 6 The circular economy—an industrial system that is restorative by design









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