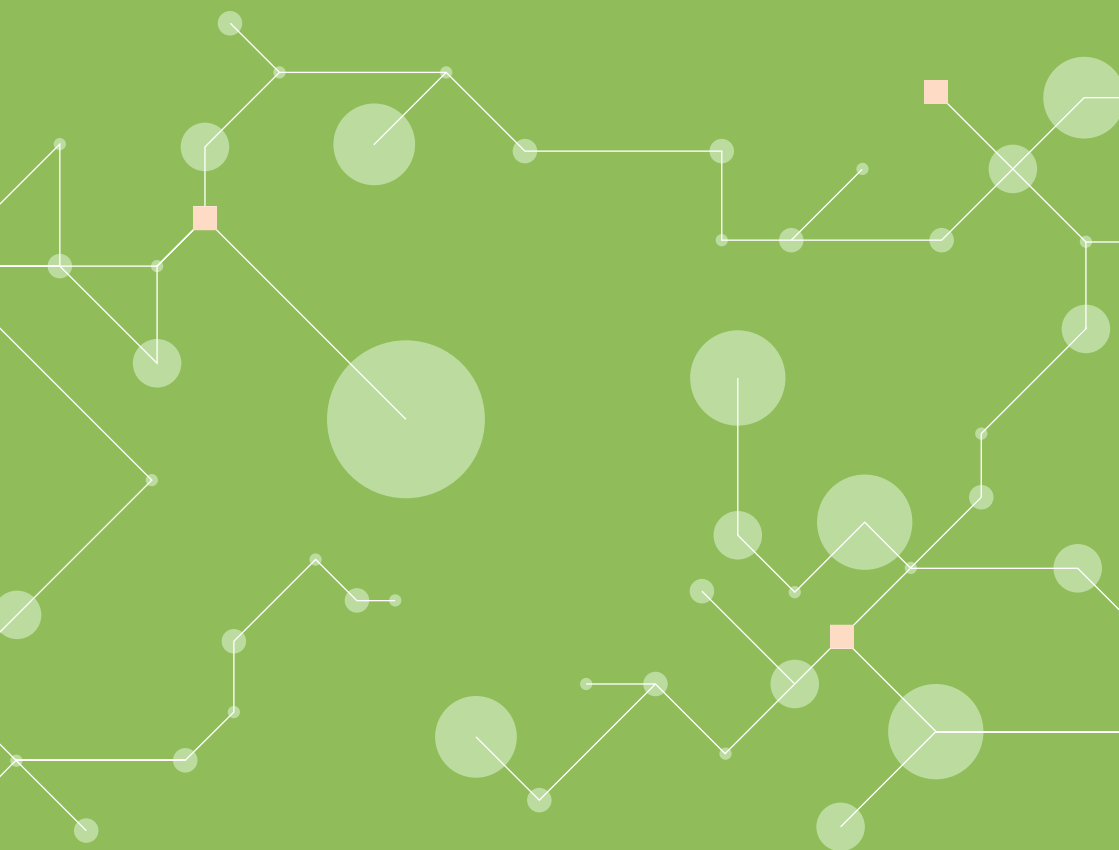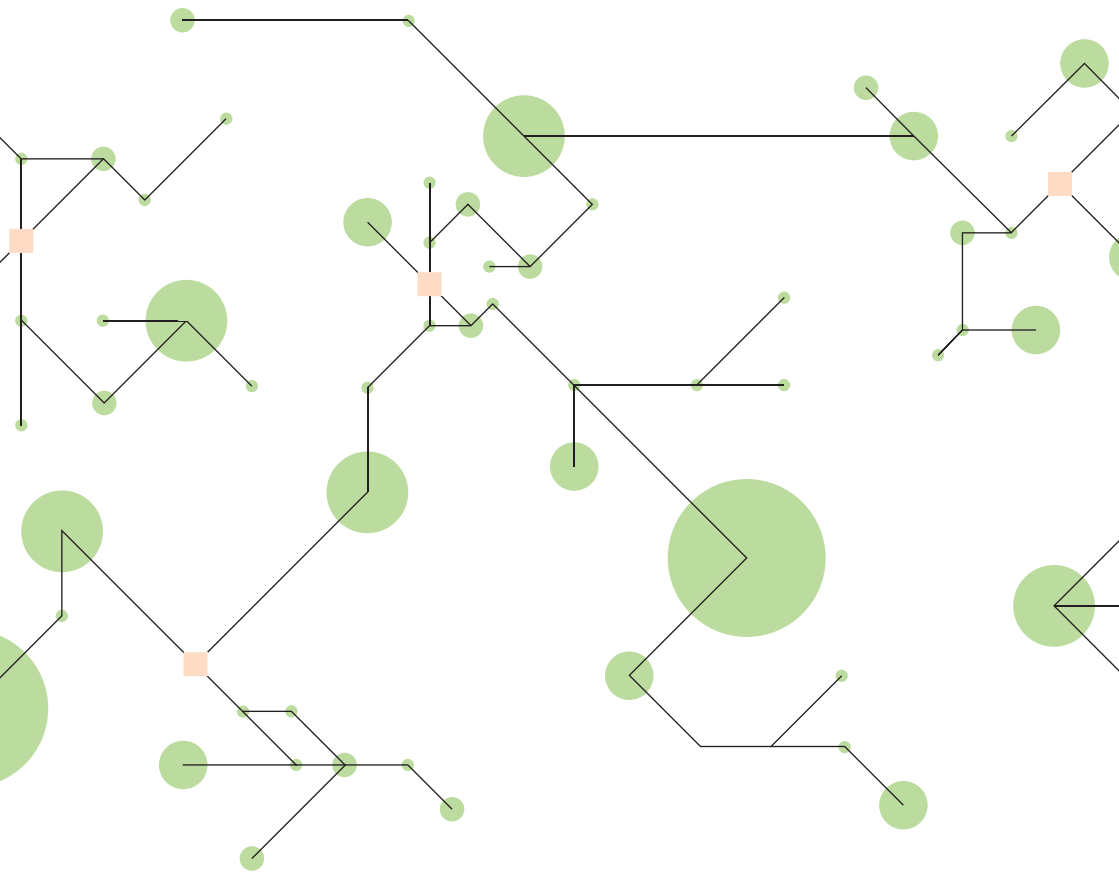# SPIMES NOT THINGS

A DESIGN MANIFESTO FOR A SUSTAINABLE INTERNET OF THINGS

Michael Stead, Paul Coulton and Joseph Lindley

Who is this Manifesto for?

- The manifesto focuses on strategies for incorporating sustainability into the design of Internet of Things (IoT) devices.

- We hope it helps to galvanise product designers, interaction designers, creative technologists and makers into action - the people who have the skills and know how to use materials and technologies to design future sustainable connected products.

- The IoT is rapidly expanding and it is beginning to have both advantages and disadvantages for our society and our planet. The manifesto might therefore also be of interest to environmentalists, connected product manufacturers, tech firms, politicians and legislators - those who campaign for sustainable change and those who have the power to deliver it.

What are Spimes?

- Spimes is a concept first introduced by the futurist and science fiction writer Bruce Sterling and outlined in his book Shaping Things in 2005.

- A spime would be a type of near future, internet-connected object, which marries physical and digital elements with sustainable characteristics.

- Internet connectivity would enable a physical spime object to be tracked and traced throughout its entire lifecycle, from its initial design and production, to having its components recycled and reused at the end of their life.

- Making the lifecycle of connected objects more transparent could be an effective way of increasing accountability amongst users, helping them to make more sustainable decisions in regard to the types of connected products they purchase, how they then use them, and, ultimately, how they go about disposing of such devices.

- Similarly, designers and manufacturers would be charged with ensuring all the materials and energy that go into the manufacture and consumption of a spime device would not be lost at the end of the device's useful life.

- Given the increasing unsustainability of IoT devices, we think now is the right time to explore the idea in greater depth.

Spimes Not (Internet of) Things

Lots of loud voices are shouting that the IoT is changing many of aspects of our society for the better. Think healthcare, energy, transport, finance, entertainment - billions of everyday objects in all sorts of sectors are being connected to the Internet, But at what cost? Despite all the fanfare, IoT devices are still designed, manufactured and disposed of in the same way that most other consumer products have been for decades - unsustainably. That's where we think spimes come in...

The lifespan of IoT devices is unsustainable:

In today's linear economy, IoT product lifespans are designed to brief. Made from cheap, easily breakable materials, the design of most IoT devices does not incorporate means for repair, upgrade or recycling. The majority of these products cannot be customised or usefully repurposed. So when new generations of such devices are released with better functionality, software and aesthetics, the old products become redundant and more often than not, in time, they will end up as landfill with their precious materials and embodied energy forever lost.

Sustainability would designed into the lifecycle of Spime Objects:
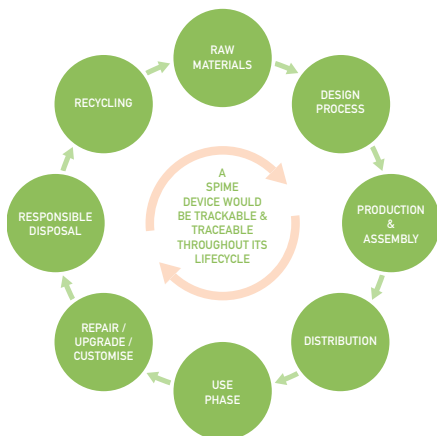
In a society built on spimes, we would get out what we put in. Instead of throwing devices away at the end of their useful life, the materials and energy that go into making and consuming a spime object would be reinvested into more spime objects. Their design would be cyclical as opposed to linear in nature. Unlike IoT devices, connecting a spime to the Internet would mean that it could be tracked throughout its lifecycle. We would know where the device has been, where it is, and, where it is going. This would allow us to continually repair, upgrade, customise and recycle spimes,

3

Why is a Manifesto for Spimes important?

Concerned by the lack of action by the design industry, manufacturers and technology firms, we chose to produce this manifesto to highlight the endemic unsustainability of IoT product design culture. Call it a mission statement or call to arms, with it we aim to lay the foundations for a more sustainable Internet-connected product landscape.

The IoT is stuck in the past, spimes are of the future...

TIME

THE
PAST

UNSUSTAINABLE
IoT
DEVICES

THE
PRESENT

POTENTIAL
SUSTAINABLE
SPIME
DEVICES

THE
FUTURE
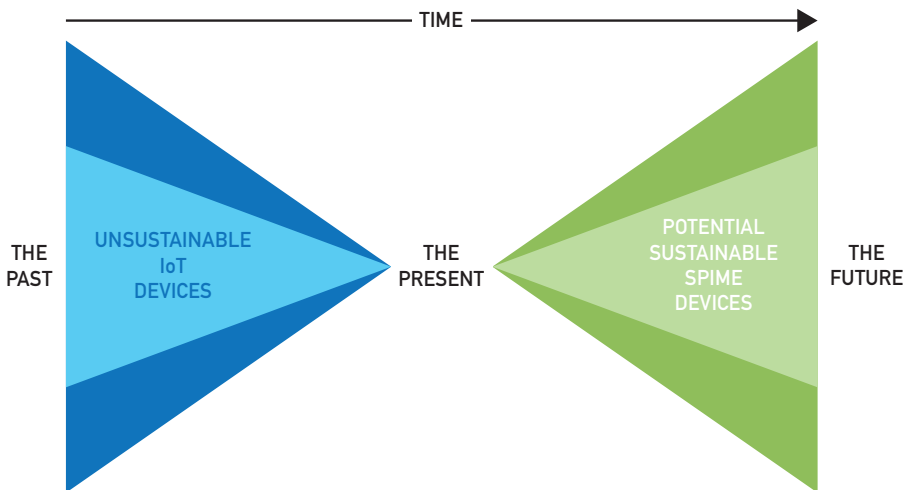
The way the IoT is continuing to be designed is old hat. It is time to start designing new types of sustainable connected products and practices. Spimes fit the bill.

Whereas most design manifestos are often 'statements of beliefs' or a list of key principles for how to go about conducting potential design practice, in our manifesto we actually include design prototypes.

In the following pages, we share with you 3 examples of how different types of spime objects could potentially be designed in the near future.

But before get to the cool spime products and services, we need to explain a bit more about our design process and the main method we have used to produce them. It's called 'Design Fiction'. Read on...

What is Design Fiction?

Most designers are actively trying to solve current actual problems, to make things better, or to produce something for sale or consumption. Design Fiction is different. Rather than solving existing problems, through Design Fiction we can use design practice to ask questions. We do this by designing fictional prototypes but instead of them being created to be put into production, these prototypes are used to encourage people to think critically about the issues that they embody.

Through Design Fiction prototypes we can ask how things might be in the future, why things might be that way, with a view to highlighting potential problems and opportunities. Design Fiction can help us to gain a better understanding about the meanings and values that emerging technologies and products might bring into play should they be adopted by society in the future.

In the following three case studies, we have used Design Fiction methods to envision what the world would be like if spime-like devices and services actually existed. We have not designed the spime prototypes with the intention of putting them into production. They are not finalised 'end products' or concrete sustainable solutions. Our three case studies aim to critique the growing unsustainability of the IoT whilst also imagining how connected objects could be designed to be more sustainable in the near future.
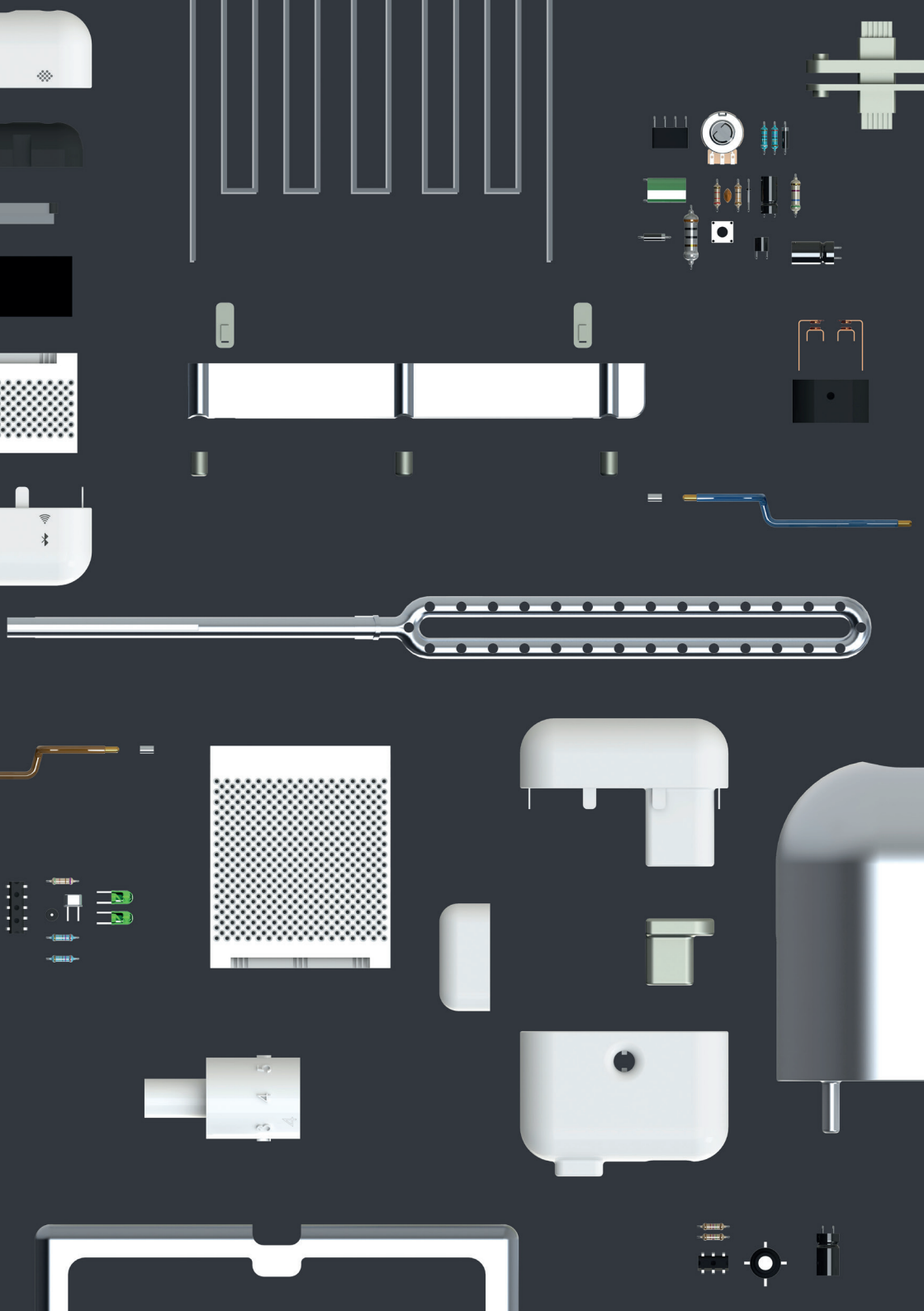
Spime Case Study 1:
Toaster for Life

Our first Design Fiction spime prototype is the Toaster for Life. We wanted to take a boring household product that everybody's knows well and turn it into a spime object. To do this, we focussed on incorporating features and technologies that would make a near future toaster repairable, upgradeable, customisable, recyclable, and most importantly for a spime, all of its individual parts and components are trackable and traceable. Always. This would mean that the toaster's owner and/or its manufacturer, could keep tabs on the device at all times. So when it comes to replacing broken parts or it is time to get rid the whole thing completely, these practices can always be managed sustainably by the user/manufacturer.

Case Study 1 helps us to consider potential near future changes to...

IoT Business models

Current IoT business models would have to radically change in order to accommodate a device like the Toaster for Life. People cannot simply repair, customise or upgrade IoT devices due to their complicated design, their use of disposable materials, and the fact that doing so would void product warranties. Our toaster is modular in design so that new parts can easily be replaced and augmented using 3D printed recyclable materials. And with all its componentry RFID tagged, GPS can pick them up at all times. As a result, manufacturers would have to reconsider built in obsolescence strategies, improve their after-care services and change the nature of product warranties.

User behaviour

The Toaster for Life would actively involve its owner in its lifecycle. This would make people more accountable in regards to how they use their connected devices and how they go about responsibly disposing of them when they are no longer needed.

repair your toaster

Modular, disassemblable and repairable. No screws or glues. Lightweight but also durable. The toaster for life is designed with product longevity in mind as opposed to disposability. We provide you with clear and simple instructions for disassembling, maintaining and repairing your toaster. So next time one of the heating elements breaks, you can easily replace it rather than throwing away the whole toaster. There's also no excuses for not cleaning the detachable crumb tray!

heat resistant bio-plastic top casing

heat resistant bio-plastic bottom casing

magnet & weight cartridge

mains plug

power board

timer & cancel board

BERNERS-LEE 3 board

mains power cable

toasting timer
cancel button
casing magnets
mica boards
nichrome heating elements
element clips
neo-aluminium mica / nichrome cartridges
neo-aluminium shelf support cartridge with spring placed inside the toasting chambers
neo-aluminium connecting pods
charge magnets
top half of neo-alu toasting chamber
bread shelf
screw on plunge handle
bottom half of neo-alu toasting chamber
electro-magnet
copper charge
charge pods
casing magnets
bio-plastic body
board connector
wires
bio-plastic body
casing magnets
crumb tray & magnets
casing magnets

9   10

◀ In order for it to be repairable, we decided to make the fictional toaster 'modular' in design. This means that if a particular part was to break or fatigue it could easily be switched out and replaced with a new one.

upgrade your toaster

SYNCHRON BERNERS-LEE 3

When the technology used in most connected devices becomes obsolete, unfortunately so too does the product. The toaster for life is different. It is designed to embrace technological change. The BERNERS-LEE 3 is a versatile computing platform which supports upgrades to new hardware and software. So as things advance and new functionality comes along, you do not have to dump your current product. The toaster's modular design also incorporates 'breadboards' as opposed to fixed parts. Individual components can be easily exchanged and reconfigured to suit all your upgrade needs.

11   12

◀ Many existing internet connected devices are rendered useless as their built-in functionality becomes out of step with advances in computing. The toaster's modularity therefore also enables computing components to be continually upgraded and reconfigured.

customise your toaster

You can customise your toaster for life to suit your changing tastes and style. Why not use your home 3D printer to fabricate new coloured toaster casings or double up your device with an extra toasting chamber and controls. Localised customisation via home 3D printing cuts down extraction, production and distribution emissions. Bio-plastic and neo-aluminium printing cartridges are available from SYNCHRON.com and SYNCHRON stores. Why not be even more sustainable - grow your own bio-plastic! Seeds are now available.

13   14

◀ Want an extra slot? Prefer it in pink? Should users' tastes or needs change, new parts and features can be incorporated into the device through fabrication technologies like domestic 3D printing.

recycle your toaster

The toaster for life is 90% recyclable. It is comprised of two main materials – 55% bio-plastic and 35% neo-aluminium. Both are heat resistant and can be infinitely recycled without degradation. You can recycle your parts by taking them to your local SYNCHRON store or returning them to us through the post.

17
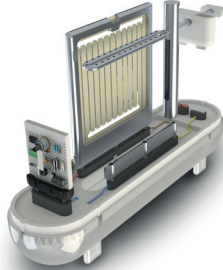
You can also trade parts via the SYNCHROMMUNITY online network. All returned parts are recycled back into the manufacturing process to be used in the production of new toasters. This continual reuse of materials constitutes a **sustainable closed loop** production and consumption process.

18

◀ Mostly composed of 'bio-plastic' and 'neo-aluminium', the toaster is 90% recyclable. These materials can be infinitely recycled and used in the production of additional devices if returned to the manufacturer.

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track your toaster

Your toaster for life is inherently trackable. Almost every part of the product is fitted with a nano-RFID tag - small but powerful radio frequency transmitters. This enables you to ascertain the whereabouts of individual components throughout the toaster's entire lifecycle. Data about each part is stored on its accompanying tag.

When tagged parts are within required proximity, their data is transmitted to the BERNERS-LEE 3 micro-processor. The BERNERS-LEE 3 is equipped with wireless and GPS functionality and continually logs details about your toaster to your toaster for life account. You can access your account anywhere and at anytime through the toaster for life app.
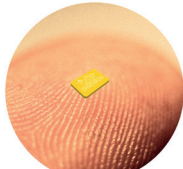
Nano-RFID tag .... **Tagged parts** .... **Tracking toaster parts through the tfl app**

15   16

◀ Almost every part of the device is fitted with a 'nano-RFID' tag. This means that each part can be collectively/individually tracked and traced throughout their lifecycle using GPS.

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safety

We provide you with a comprehensive instructions manual that shows you how to safely disassemble, repair, customise, upgrade and recycle your toaster for life.

warranty

A new kind of toaster must also come with a new kind of cover. Unlike a regular product warranty which would become void, our **open for life warranty** remains valid even if you try to alter and repair your device yourself or via any kind of third party.

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support

Expert help is available from SYNCHRON 24/7. Log into your toaster for life account and use the tfl **voice assistant** or chat to one of our techicians directly via **Mob-AR.***

*mobile augmented reality subscribers only

community

Join the SYNCHROMMUNITY to trade parts and components plus find inspiration for upgrading your toaster. You will also have access to hundreds of troubleshooting and customisation tutorials to help you personalise your toaster for life.

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◀ The Toaster for Life would change the nature of the relationship between manufacturers and users. Things like product safety, product warranty and customer support would have to evolve to accommodate the device's five sustainable attributes.

Spime Case Study 2:
HealthBand

Would you want to design and use your own wearable medical device? Our second fictional spime prototype is HealthBand, a Do-It-Yourself medical wearable. The internet has made digital technologies like open source electronics and CAD software very accessible and cheap to buy. It's argued that the maker movement and other 'democratised' activities that use these powerful and flexible technologies to design connected devices are a more environmentally friendly alternative to the mass-production/mass-consumption methods that currently characterise the IoT. Mimicking sites like KickStarter and Indiegogo, we framed the HealthBand wearable within a fictional online crowdfunding campaign. The campaign sees 3 developers design a core module for the HealthBand wearable for different personal reasons. Once shared, their designs could also benefit others in society.

Case Study 2 helps us to consider potential near future changes to...

IoT Policy and regulation

The HeathBand prototype helps us to generate discussions about how near future, DIY medical devices might become widely adopted through social innovation practices and localised production channels. Importantly, current product policy and associated legislation would need to adapt to accommodate and nurture democratised IoT design culture while still maintaining adequate product safety and quality standards.

IoT User innovation practices

The last decade has seen lots of 'ordinary people' getting involved in physical-digital 'making' practices and producing new connected devices and services. Creative, rewarding and often altruistic, more should done to encourage people to participate in these types of activities. Such a shift could be of sizable sustainable and social benefit.

DIABETES MONITOR

THE MAKERS

GARY PARKS AND **PHIL CAMPBALL**,
MANCHESTER, UK

THE STORY

GARY AND PHIL SET UP THE PROJECT IN 2028 AND HAVE SEEN HEALTHBAND GO FROM STRENGTH TO STRENGTH...

"WE COULDN'T HAVE IMAGINED THE SUPPORT THE PROJECT WOULD RECEIVE NOR THAT OTHERS WOULD BEGIN TO HELP DESIGNING AND EXTENDING THE RANGE OF MODULES.

WE STARTED HEALTHBAND FOR A PERSONAL REASON - TO HELP MY COUSIN ARTHUR. BUT WE HAVE REALISED THAT IT ALSO MEANS SOMETHING TO A LOT OF DIFFERENT PEOPLE. IT SHOWS THAT DESPITE THE CONTINUED AND UNJUST GOVERNMENT AUSTERITY MEASURES AND INDEFENSIBLE PRIVATISATION OF THE NHS, THERE IS DEEP SOLIDARITY AND GOODWILL OUT AMONGST THE WIDER PUBLIC.

THE FUNDING SO FAR RECEIVED HAS ENABLED US TO ROLL OUT A BATCH PRODUCTION OF BANDS AND WE ARE DETERMINED TO KEEP ON BUILDING HEALTHBAND INTO 2030 AND BEYOND.

DEMENTIA MEMORY AID

THE MAKER

ALICIA KURTZ, WILLIAMSBURG,
BROOKLYN, NEW YORK

THE STORY

ALICIA IS A SOFTWARE DEVELOPER FROM AUSTIN, TEXAS NOW WORKING IN MANHATTAN, NEW YORK...

"I SAW GARY AND PHIL'S PROTOTYPE ON LIGHTBULB. I KNOW CODE AND CAD AND DECIDED TO DESIGN AND BUILD SOME NEW MODULES.

ALZHEIMER'S IS QUITE PROMINENT IN MY FAMILY. MY GRANDFATHER HAD IT AND NOW MY MOM IS BEGINNING TO SHOW SIGNS. I WANTED TO DESIGN A BAND THAT WILL HELP MY MOM AND OTHER ALZHEIMER'S SUFFERERS.

LUCKILY I GET HEALTH INSURANCE THROUGH MY JOB BUT MY MOM AND MILLIONS OF OTHER PEOPLE HERE IN THE STATES CAN'T AFFORD ANY KIND OF BASIC HEALTHCARE.

OPEN DEVICES LIKE HEALTHBAND MEAN PEOPLE CAN, TO A CERTAIN DEGREE, LOOK AFTER THEIR OWN HEALTH."

PARKINSON'S STABILISER

THE MAKER

EMI MIFUNE, MITAKA,
KANTO, WESTERN TOKYO

THE STORY

EMI IS AN UNDERGRADUATE STUDENT STUDYING PRODUCT DESIGN AT THE UNIVERSITY OF TOKYO...

"MY COUNTRY HAS THE FASTEST AGING SOCIETY IN THE WORLD. OVER 65s CURRENTLY ACCOUNT FOR 26% OF THE POPULATION. IT IS ESTIMATED THAT BY 2060, THIS FIGURE WILL INCREASE TO NEARLY 50%. THE PROBLEM IS NOT HELPED BY OUR EVER FALLING BIRTH RATE.

ALTHOUGH JAPANESE PEOPLE ARE FAMED FOR LIVING LONG AND HEALTHY LIVES, AS THE NUMBER OF ELDERLY PEOPLE CONTINUES TO RISE SO TOO DOES THE LIKELIHOOD OF HEALTH PROBLEMS IN LATER LIFE.

AS A TRAINEE PRODUCT DESIGNER I FELT I COULD USE MY EXPERTISE AND CONTRIBUTE TO GARY AND PHIL'S PROJECT. THE NUMBER OF PEOPLE WITH PARKINSON'S IS INCREASING IN JAPAN. I THEREFORE DECIDED TO TRY AND AID THOSE LIVING WITH THE DISEASE."

FINDING FUNDING

Phil & I uploaded our prototype to the crowdfunding site LightBulb. We were blown away by the response...

Inspired by sites like KickStarter, we created a fictional crowdfunding page for the HealthBand wearable to show how people could easily get involved with the device's development and production.

The fictional wearable's design is modular which means new modules with new functionality can easily be integrated as and when they are developed.

Personal health data captured by a HealthBand device could be viewed via an online app.

Department of Health

The case for change

1.1 Rising aging populations living with chronic health conditions like diabetes, dementia and Parkinson's disease have put an incessant strain on the NDHS. Although it has been proven that these conditions can be successfully managed by patients using wearable health devices, due to abstruse health product legislation, too few devices have been made available to patients over the last decade. At the end of January 2027, 345 of the 418 local health authorities had put forward 'autonomous patient digital health' policies for consultation. Since then, the National Digital Health Framework has also published its report on 'home-made' wearable health devices,[20] as a means to fulfil the terms of service pledged by the NDHS in 2021.

1.2 Changes to digital health services have remained slow, expensive and bureaucratic, with arguments about how many patients will be able to manage their own healthcare autonomously and what level of services are offered

1.4 In response, this chapter sets out our proposals to reform health product legislation as well as identifying sufficient funding and expertise to make the most of the proposed changes; with community involvement to make the best outcomes for both 'autonomous citizens' and those continuing to use limited health services.

1.5 A number of the proposals build on consultantions and reviews conducted over the last year: the report of the Local Health Device Group; consultations on changes to the National Digital Health Framework;[21] frontline service reviews (the results of patient-led care trials at different sites across the country); and the National Patient Wearable Review also provided evidence.[22] The Government has taken account of responses to these consultations in deciding the way forward . A summary of the responses to each consultation is being published alongside this White Paper.

Getting tech in place

Making sure every UK citizen has access to digital technologies and

A fictional 'white paper' produced by the UK Government proposing legalising DIY medical wearable device production.

Department of Health

NDHS

A patient guide to gaining home-made heath wearable certification

Helping you deliver the **best** in care

To see all of our current patient information leaflets please visit www.uhb.ndhs.uk/patient-information-leaflets.htm

Starting a health wearable patient trial

Since the Government passed the *Domestic Wearable Health Act* in 2032, the NDHS has outsourced health wearable research and development to third party developers.

If you are a third party developer and are looking to gain certification for your device, you must submit your prototype to testing via a series of patient trials.

The next 5 steps explain the first patient trial process:

1 Visit the NDHS website and complete the initial device sign up process - www.uhb.ndhs.uk/devicesignup

2 If your prototype passes the sign up process, it will be listed along with its CAD templates and operating software on the NDHS Open Wearable Database. All UK patients can access this database free of charge at any-time.

3 For its first trial, your device must be selected by a minimum of 6 patients and trialled for a minimum of 3 months by each of them. They must download, fabricate and operate the device themselves in accordance with your submitted instructions.

4 As per the *NDHS Wearable Hardware/Software Design Guidelines*, your device must transmit all patient usage data at all times to the NDHS data centre.

5 The patient data will be analysed by NDHS health tech specialists who will determine if your device can be put forward to the next stage of patient trials.

PI_1449_01 Devices and Patient Trials | 5

The UK's National Health Service might have to provide guidelines to patients to ensure they develop clinically safe devices.

NDHS   **PERMIT No. 3874531**

DOMESTIC FABRICATION PERMIT

NDHS

NAME:	WANDA OJABOE
SEX:	F
D.O.B:	28/07/1965
ADDRESS:	1 CHART WAY CLAPHAM LONDON SW4 9IJ
CONDITION:	DIABETES T1
ISSUED:	12/02/2035
EXPIRY:	11/02/2038

I HEREBY CERTIFY THAT THE PERSON PRESCRIBED THIS PERMIT IS AUTHORISED TO FABRICATE A WEARABLE HEALTH DEVICE IN ACCORDANCE WITH THE 2032 DOMESTIC WEARABLE HEALTH ACT.

Derrick Hensley   DERRICK HENSLEY - CHIEF MEDICAL OFFICER

To regulate DIY production, people might have to even apply for a permit.

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The Council and BIG announce the formation of the *Alliance for Sustainable Blockchain Stewardship* and the creation of the *Secure Metahistory Certification Mark*

For Immediate Release: 23/02/2026

The Council for Science and Technology and Better IoT Global are pleased to announce the formation of the *Alliance for Sustainable Blockchain Stewardship* and the creation of the *Secure Metahistory Certification Mark*. The announcement comes after implementation strategies for both initiatives were approved by Government following a year of research and consultation:

- The Department for Science and Technology's white paper *The Future is Metahistory: Blockchain, Ecology and the Economy* was published 18/01/25 and outlined potential benefits and possible issues with regard to corporate and public adoption and acceptability of Blockchain and the optimisation of consumers' metahistories.

- Technology and consumer trials held across summer 2025 were successful and provided valuable insights for efficient and secure implementation.

- *Open Traceability Protocol* and knowledge exchange - the increased transparency granted by metahistory data regards physical and digital materials is deemed to hold transformative possibilities for environmental sustainability.

- Optimisation will also create new markets and generate opportunities for platform development and data mining jobs which in turn will boost the overall economy.

- Blockchain's inherent decentralisation is a proven secure and robust alternative to traditional centralised transaction systems. There has been growing mistrust amongst the wider public for conventional banking culture since the UK was again plunged into a recession by banking malpractice in spring 2023.

The alliance will work closely with product manufacturers, data platforms and sustainable bodies on advancing open traceability for sustainable benefit.

The certification mark will be used by stores, platforms and applications to denote a secure and sustainable transfer of consumer's personal metahistories using blockchain and smart contracting processes.

Dr Clement Benway,
Government Chief Scientific Adviser (GCSA),
c.benway@gov.uk

Spime Case Study 3:
The Future Is Metahistory

Your personal IoT data is really valuable. When you use connected products and their associated services like apps and websites, tech companies sneakily harvest and monitise your data. They mine it for any commercial intel and often also sell it on to other 'invisible' partners who do the same. But what if the value of connected product data was not money but sustainable change? Our final case study looks at an attribute of spimes called metahistory. A spime object would generate meta-data about itself at all times. We designed a series of prototypes and artefacts that help us to start thinking about how spime metahistories might be 'optimised' for sustainable gain.

Case Study 3 helps us to consider potential near future changes to...

The ethics of IoT data practices

The way in which peoples' personal data is handled throughout the IoT today is incredibly complex, difficult to trace, almost invisible to users, and, is probably unlawful in many aspects. If society were adopt to spime metahistories as presented by our prototypes, technology platforms and services would be compelled to make all their data processes and digital infrastructures much more transparent to users. In light of recent data scandals and breaches, transparency of data is something tech firms need to consider in greater depth.

The ownership of IoT data

As it's difficult to keep track of what happens to our data, we should do more to protect it by reconsidering our current online practices. We mirror this in the spime based future we have designed. Everyone would have access to everyone else's metahistories, In this event, we are sure people would consider more carefully how they interact online and what information they share.
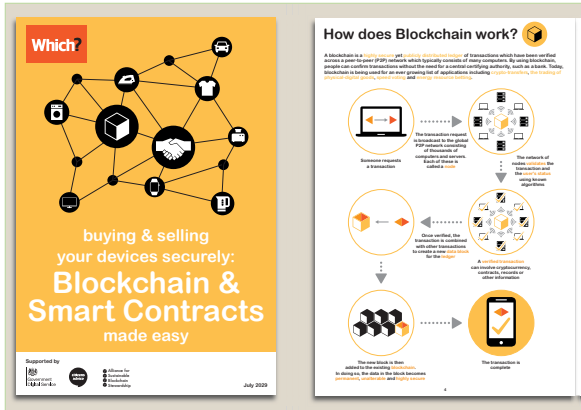
◀ We created a near future Which? tech help guide to introduce audiences to the technology and explain its complexities and advantages in terms that can be easily understood.


◀ We created a fictional mobile app called Lazarus which utilises blockchain to facilitate greater 'asset transparency' by tracking the origins and histories of connected products, and verifying their provenance. We envisage an app like Lazarus might help to empower sustainable behaviour by helping people to securely recycle, reuse and repurpose data-rich spime objects when they are no longer wanted.
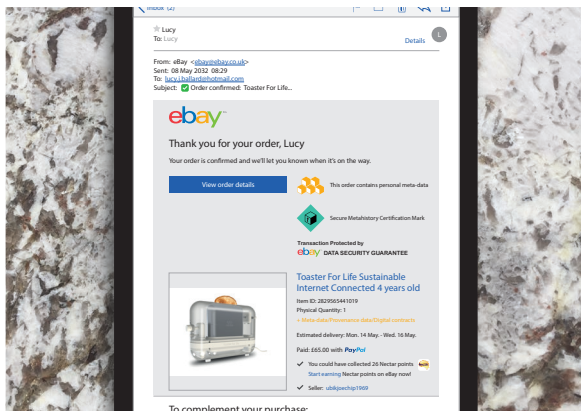
◀ As per governmental protocol, eBay has included the Secure Metahistory Certification Mark on this receipt to denote that this transaction involves blockchain processes which ensures the safe transfer of the toaster's seller's personal metahistory data.
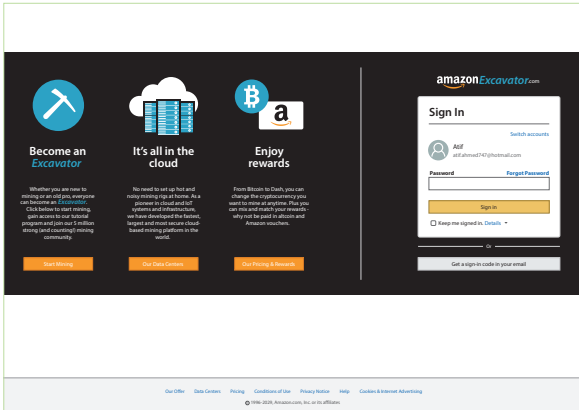
◀ A web interface for a fictional cloud data-mining platform operated by the Internet giant Amazon. So called 'excavators' can sign up to mine the vast silos of spime product metahistories for crypto-rewards. In our fictional world, Amazon would accumulate membership fees and percentages from successfully mined metahistory blockchains.
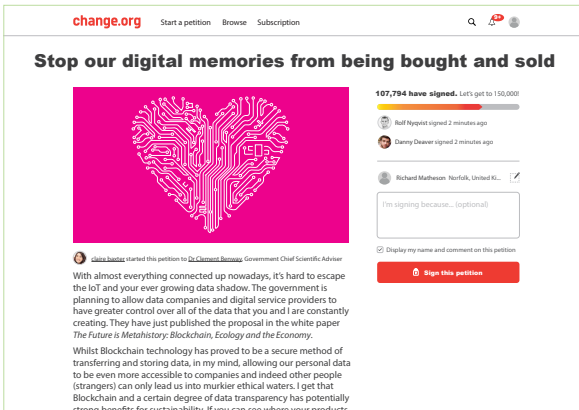
◀ This Change.org petition highlights concerns that some people might have regards future 'open traceability' and widespread adoption of metahistory data exchange.

◀ Are the sustainable advantages of spime metahistories more important than users' privacy? A photo of protestors at the Make Metahistory HISTORY march through London, June 2028.

Our 6 Key Messages

IoT Business Models

IoT businesses should start to think about designing out built in obsolescence strategies, putting long-term product after-care services in place and revising product warranties to allow for user customisation and repair.

IoT User Behaviour

Users of IoT devices should think more about accountability in regards to how they use their connected devices and how they go about disposing of them when they are no longer needed.

IoT Design Policy

Policy and legislation should adapt to accommodate and nurture democratised IoT design culture, allowing for localised production while maintaining adequate product safety and quality standards.

IoT User Innovation

Open source technologies and domestic fabrication tools are becoming evermore affordable and accessible. Creative and rewarding, people should be encouraged to get involved in these types of practices.

IoT Data Ethics

Platforms and service providers should start making their data processes and infrastructures less complex and more transparent to users.

IoT Data Ownership

As it's difficult to keep track of what happens to your IoT data, you could do more to protect it by reconsidering your current online practices including how you interact online and what information you share.

Further Reading

Bruce Sterling, 2005, Shaping Things, Cambridge: MIT Press

Michael Stead, Paul Coulton, Joseph Lindley and Claire Coulton, 2019, The Little Book of Sustainability for the Internet of Things, Lancaster: Lancaster University. Available to download for free from here: https://www.petrashub.org/outputs/

Paul Coulton, Joseph Lindley and Rachel Cooper, 2018, The Little Book of Design Fiction for the Internet of Things, Lancaster: Lancaster University. Available to download for free from here: https://www.petrashub.org/outputs/

PETRAS

High
Wire

imagination
LANCASTER

Lancaster
University

EPSRC