



SAVE TIME SAVE MONEY SAVE THE WORLD

How IT, tech and software solutions can reduce the carbon footprint of your business.



We're in the middle of a climate emergency. But can the choices you make regarding IT and software development really make a difference to the environment?

The current UK government's target aims to reduce carbon emissions by 80% (compared to 1990 levels) by 2050, but evidence from experts suggests that just won't be enough.

That's why many towns and cities across the UK - including Mashbo's home city of Liverpool - have declared a climate change emergency and set themselves the challenge of becoming net zero carbon cities by 2030.

Your clients and customers care too. Many will check for environmental credentials before buying or choosing your company and even ask questions about what you are doing to reduce your carbon footprint. Earlier this year, our client the [Centre for Alternative Technology \(CAT\)](#) did just that to us and it helped drive the way that we approached that product and others as we moved forward.

Routes to achieve this change are varied, from addressing transport, air quality, waste and recycling to making changes to buildings and the built environment and creating a low-carbon economy.

And that's where your tech choices come in.

Do your bit for the low carbon economy

You see, everything we do at work has a carbon footprint. Some of it is obvious, such as the cars we use to commute into our offices. Other things, which drive our day-to-day work, have an impact that we just can't see.

The internet alone releases around 300 million tonnes of CO₂ a year - as much as half of the fossil fuels burned in the UK. 'Spam' or unnecessary emails (the single line 'thank you' or joke emoji reply) generate 0.3g of CO₂e (carbon dioxide equivalent) per email, which doesn't seem too bad, until research reveals we send more than 64 million unnecessary emails every day.

Data centres packed with servers full of web pages, apps and databases, which we use daily without thinking, all contribute to emissions. Running programmes on outdated systems, playing email tennis and choosing tech suppliers that aren't committed to a low carbon economy will all have an impact as well.

So, if you thought that the choices made when it comes to IT and software development couldn't possibly help both the environment and your business' sustainability and green credentials, you'd be wrong.

Here's how you can support the low carbon economy, improve your business and - if we all work together - maybe even save the world...





FIVE WAYS TECHNOLOGY COULD REDUCE THE DIGITAL CARBON FOOTPRINT OF YOUR BUSINESS.

PROCESS AUTOMATION

At first this may seem a bit counter-intuitive. The development work that goes into creating platforms that automate day-to-day processes involves the use of servers and communication via email. However, the long term outcomes can more than offset that carbon impact.

First of all, when we create a software product or web app, we run it on one server, alongside several others, rather than our clients running it off an individual server - see it as digital carpooling of sorts. There's still an impact, but it's greatly reduced.

Quite often as well, automating processes can have other positive outcomes as well, such as greater productivity, efficiency and profitability - not to mention happier, healthier employees.

Two recent Mashbo projects illustrate this perfectly.



Automation Case Study 1 :

PARKR

Parkr is a digital solution to the challenge of corporate car park management. The idea grew out of a solution developed for a client to manage its business car parking spaces.

We rolled out the app as a product that could be purchased and set up on a business-by-business basis, after seeing a demand for a simple solution to the universal issues caused by poorly-managed corporate car parks, the most pressing of which - from an environmental perspective - is the emissions produced by people commuting into work and searching for a parking space.



“Car parking management has an important role to play as an instrument to reduce carbon emissions”

Donald Shoup, *The High Cost of Free Parking* (2005)

According to the British Parking Association, drivers spend an average of 5.9 minutes looking for a space to park. During that time vehicles are churning emissions into the atmosphere. That's why, when we created Parkr, we designed it as a tool to reduce carbon emissions, as much as a business efficiency aid.

Parkr allows businesses to configure their own car park within the app's administration system and assign specific spaces to employees who are assigned car parking spaces. These 'space owners' will be able to release the spaces to make them publicly available when not in use. If there are spaces that are not owned by anyone, they too will be made publicly available within the business, via the app. What's more, the cloud-based admin system takes businesses a step away from CO2-generating data centres.

IMPACT

Within two months of the app being deployed at its Chiswick Park offices of our client, international nutrition brand, Danone, saw great results. The app, branded as 'DanPark' received 150 requests for spaces, with 57% of spaces being filled.

Longer term use of the app maximised the potential of the company car park, increasing occupancy, reducing lateness, improving staff morale and even having a positive impact on the environment by reducing time spent looking for a car parking space and boosting opportunities for car sharing.



Automation Case Study 2 :

PROPERTY CLOUD

PropertyCloud is a cloud-based web application, designed to transform the student and HMO lettings market by automating the entire rental process with a single integrated and comprehensive package, hosted in one place and working seamlessly together. It is commercially available on a cost-per-tenant basis.

The platform was first rolled out across the portfolio of specialist student letting agent, Rooms4u in 2017 and has since completely transformed the way the business operates.

IMPACT

As well as removing the need to use lots of different systems, each working off separate servers, it delivered other benefits to Rooms4u's employees, landlords and tenants too.

Tenancy contracts could be signed and payments made online by students and guarantors, from wherever they were located, as opposed to the previous practice of each being required to attend Rooms4u's offices, meaning less unnecessary journeys. This also reduced the time spent on tenancy generation and contract signing from three weeks to under an hour.

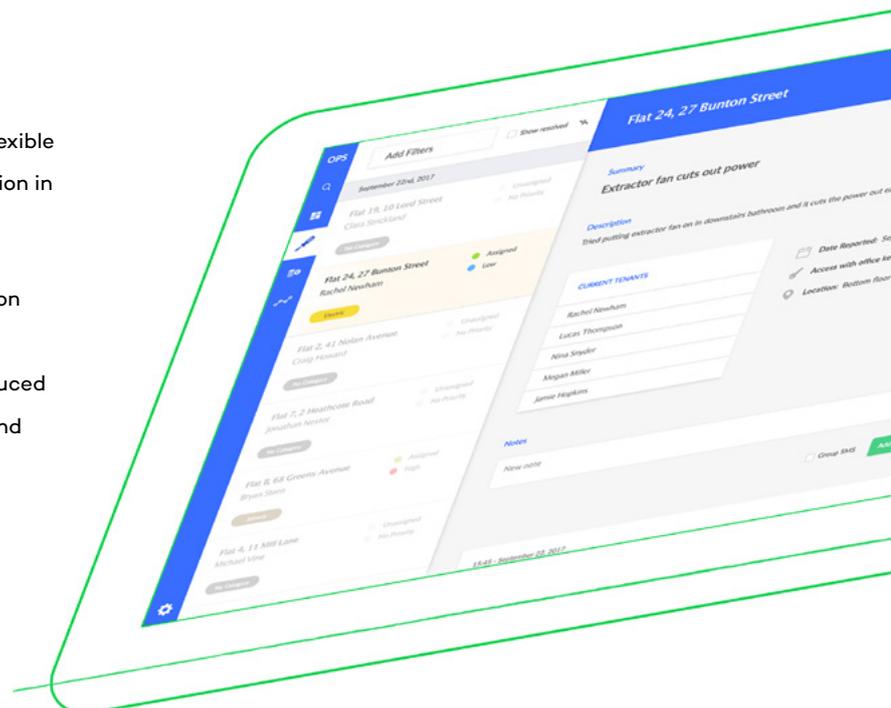
Not needing to manage physical paperwork and administrative tasks in the office has also facilitated flexible working opportunities for employees, meaning a reduction in the amount of days they need to commute.

An automated and fully integrated maintenance function has also streamlined response to tenant issues, while PropertyCloud's online viewing booking system has reduced instances of wasted journeys for prospective tenants and landlords, through its robust confirmation system.



“Assessing the carbon impact of your business and identifying ways to reduce emissions, go beyond policies and procedures. It requires a completely fresh look at your day-to-day processes and how you interact with your clients, and a willingness to completely disrupt what has become the norm.”

Gavin Sherratt, MD, Mashbo



DATA-DRIVEN DECISIONS WITH MACHINE LEARNING AND AI

Simple process automation is accessible to businesses of all sizes, with a little initial investment, and it can deliver considerable returns, both in the environmental stakes and financially.

A step further than this are the more sophisticated implementations of machine learning and artificial intelligence (AI). AI is knowledge implemented in an existing system and used to train computers to do tasks previously undertaken by humans. Machine learning, is an application of AI that provides a system with the ability to automatically learn and improve from experience.

Advanced AI techniques can allow us to analyse big data that can then be used to inform systems and respond to the information it provides.

In home heating systems, for example, this could mean AI recognises patterns of use in a particular home, draws data from weather reports and responds accordingly, by predicting how inhabitants would usually heat various rooms based on the expected conditions, time and day.

Using sophisticated technology in this way could help reduce energy wastage and emissions. However, at this stage it is worth noting that 'deep learning' has a considerable carbon footprint of its own and that creating AI can be worse for the environment than owning a car, so the carbon impact that this technology creates must offset its carbon footprint.



UPGRADE YOUR SERVERS

Running systems off older technology has negative implications for the environment. Making small changes in this area can create a BIG impact, even though the changes will be barely noticeable on a day-to-day basis.

Take PHP for example. PHP is one of the most popular programming languages in the world. It is run on the web server and helps developers to make web pages more interactive by allowing them to do more intelligent, complex things.

Many web pages and apps still run on an older version, PHP 5. Yet upgrading just 50% of servers from PHP 5 to PHP 7 would save \$2billion in energy costs per year, as well as avoiding billions of kilograms of CO2 emissions. You can find out more about that [here](#).

When internet data centres are now producing just as much CO2 as global air travel, it's important that businesses look at all of the changes they can make, even if some of those changes aren't as tangible or visible as others.

“Businesses need to be thinking strategically about their digital impact. Keeping systems up-to-date and considering whether you really need that giant video on your homepage, which is taking up bandwidth and pumping out CO2 in the process. These are tiny changes, but as they say in Formula 1, your performance is the aggregation of marginal gains.”

Steve Todd, Technical Director, Mashbo

Put simply, if you consider the environmental impact of every digital decision and keep the systems you use up-to-date (or you engage a supplier that does) you'll save energy, save on costs and go some way towards the challenge of saving the world.



VR vs TRAVEL

Virtual Reality (VR) in many ways has struggled to find its place in the technology landscape. Initially a big hit in gaming and certain aspects of retail, it became considered somewhat faddy and clunky due to hardware such as headsets required to get the full experience.

But there is one area where it may still reveal its worth is as a tool to reduce carbon emissions. Travel is one of the biggest contributors to carbon emissions in the UK, making up a third of overall emissions. It's also a significant cost to many British businesses.

Meetings, training sessions and even working from home could be facilitated by VR, removing the need to travel locally, nationally and even internationally, cutting companies' emissions drastically.

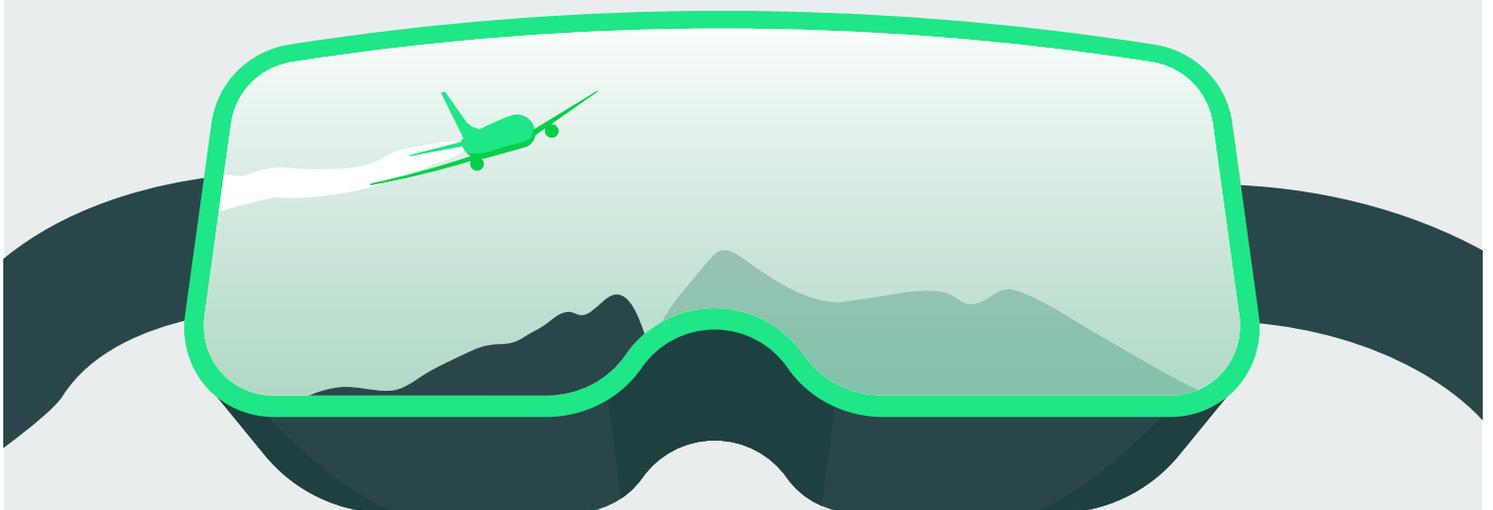
The same premise could be used in education, as with a VR platform, developed by Mashbo which delivered educational content in the form of 360 videos from First World War sites in France. Rather than contributing to carbon emissions by flying or bussing students to the historical sites, the product allowed them to experience it without leaving their classroom.

More recently, we supported Edge Hill University in the creation of a [360-degree virtual reality campus tour](#), aimed at international students and UK students from outside of the university's locale - again reducing the need for unnecessary travel.



“While there are arguments for VR travel and experiences such as concerts and shows, these are things that might be best experienced in person. The real benefit of VR could be reducing unnecessary journeys for business, or functional activities that don't really require your physical presence, such as meetings, conferences, presentations or training.”

Gavin Sherratt, MD, Mashbo



“Sustainable UX design is all about identifying digital waste - anywhere where energy is being used to power something unnecessary. That might be by displaying video where users are only listening to audio or reducing page loading times by removing unnecessary tracking data.”

Charlie Davies, UX designer, Mashbo

CARBON NEUTRAL YOUR UX

Sometimes the smallest changes can make the biggest difference. When it comes to the UX (user experience) of websites, apps and platforms, it is possible to offer users the opportunity to make choices that will have a positive impact on the environment.

This can be as simple as offering eco-friendly options where available on consumer websites, such as ticking a box refusing additional packaging or requesting wooden cutlery. When creating a website for London catering service [Hospitality2u](#), Mashbo took a similar approach, by creating a user flow that meant additional cutlery needed to be requested, rather than provided as standard - a move that also saved the company money.

But it's not just the functionality your website or app offers, it's the design. Earlier this year, WIRED UK [revealed that YouTube's annual carbon footprint was about 10 million metric tonnes of CO2e](#) (carbon dioxide equivalent) - the output of a city the size of Glasgow. This could be drastically reduced simply by applying Sustainable Interaction Design.

Sustainable Interaction Design is the premise that sustainability must be at the heart of all digital interaction design and a tool to reduce the carbon footprint of digital properties. A few easy design changes and greater consideration about content in apps and on websites, could easily slash its carbon footprint.



ABOUT MASHBO

We build things people use

Mashbo is a UK-based software development consultancy that uses automation to create digital solutions that transform organisations. We use technology to solve complex challenges and transform the efficiency, capability and profitability of global organisations, improving the lives of their employees and customers.

Our products include custom CRM systems, automated administrative software, automated audit software, cloud-based web applications, progressive web applications and online management systems, to name just a few.

Mashbo was founded in 2011 by Managing Director, Gavin Sherratt and Technical Director, Steve Todd. Clients include Liverpool FC, Everton FC and Everton in the Community, BDO, Manx Telecom, Nugent, Swiss Re and Danone.

As well as our core business we also bring our professional community together to share knowledge and best practice through our community brand Creative Kitchen.

We play a key role in the business community of our hometown, Liverpool, championing the city on a national and international platform and facilitating global working opportunities. We do this through Mashbo's role as strategic digital and technology partner to the Liverpool Chamber of Commerce, as well as by creating working links with Tech Nation UK, You Tube, Twitter and Google.

OUR VALUES

We pride ourselves on “keeping it Mashbo” - adhering to six core values in everything we do, with our primary aim being to change everything we touch for the better and deliver positive impact to people, organisations and communities.

We strive to always:

- 1 Make a positive difference** - Change everything you touch for the better and deliver positive impact to people, organisations and communities
- 2 Push the boundaries** - Never stop exploring, playing and pushing the boundaries of our technical ability. Tech doesn't stop, so neither should we
- 3 Be go-givers** - Pursue and embrace opportunities to help others and encourage education, collaboration and knowledge sharing for the greater good
- 4 Have self-belief** - Take on any challenge with the knowledge that you have the skills, support and capability to succeed and deliver. Know your worth and respect the worth of others
- 5 Say it as it is** - Ditch the small print and be honest. Build relationships on a strong foundation of trust and transparency
- 6 Keep it Mashbo** - Commit yourself to doing the right thing, in the best way possible, in everything that you do



Managing director

GAVIN SHERRATT

Gavin is the pioneering and entrepreneurial heart of Mashbo. With 21 years' experience working at the forefront of technology in senior level creative and technical roles he is no stranger to working with global brands and big multinational clients. He drives our team to push the boundaries of new and emerging technologies and build innovative, transformational products and solutions with the power to revolutionise whole industries. The proud recipient of the Big Chip Leadership Award in 2017 and a name check in Forbes magazine in 2015, Gavin works closely with clients and investment business partners to develop their business strategy, identify challenges and commercial opportunities and advise how they can invest in digital to future proof their enterprises and organisations. He is also committed to the development of our industry locally and nationally, founding Creative Kitchen to encourage knowledge sharing between agencies, businesses and freelancers in the creative and digital sector.

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Technical director

STEVE TODD

An experienced project manager and natural digital problem solver, Steve is an expert in an extensive range of computer languages, frameworks and tools. He uses this expertise to push the boundaries of our technical ability, leading projects for global companies, SMEs and social enterprises, future proofing their businesses through automation and AI, as well as delivering business-transforming solutions for whole industries. A great communicator, Steve is also responsible for building client relationships, ensuring our projects deliver the best solutions on time and in budget. Committed to the future of the industry, Steve mentors students in the Computer Science Department at Liverpool University. He was also recently shortlisted in the Insider Young IT Professional Award 2019.

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NEXT STEPS

Ready to save time, money and the world? Let us help you identify ways where technology could transform your business.

Contact Mashbo:



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