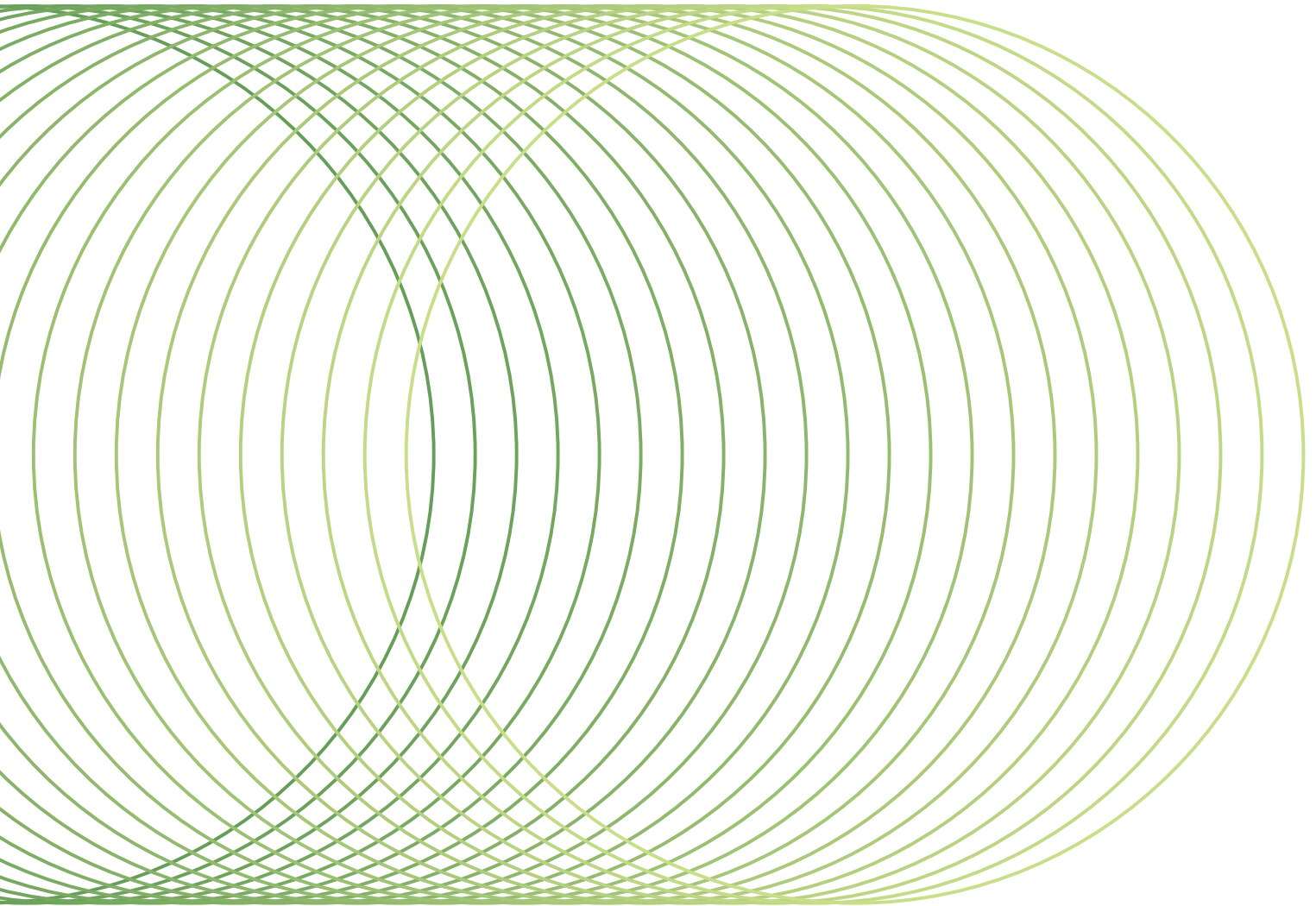


Eco-I

North
West

Eco-I North West

Supporting Low Carbon Business
Innovations Across the Region



Eco-I North West is a £14 million programme set up in 2019 to further develop the North West as a regional exemplar for low carbon innovation, skills and 'green' economic growth.



Drawing from research provided by North West Coastal Arc Partnership and Clean Growth strategy, we set up the project with these key ambitions:

- Support the development of new products and processes
- Support the research and development of low carbon technologies, products and services
- Enable businesses to capitalise from the region's extensive knowledge base and cutting-edge research facilities and skills

Eco-I North West Team

Eco-I NW is a collaborative partnership between the universities of Liverpool John Moores (LJMU), Lancaster, Central Lancashire, Cumbria, Liverpool and Manchester Metropolitan, and is part-funded through the European Regional Development Fund (ERDF).

Each institution offers a different set of expertise, equipment and resource to businesses, helping them realise the low-carbon potential in their products, processes and services. In this document you will find a selection of case studies for just some of the businesses we have supported.



Strengthening research, technological development and innovation.

ECO-I NORTH WEST PROJECT OUTCOMES



ECO-I NORTH WEST SECTORS & THEMES



How does Eco-I North West work?



Activities

Your bespoke action plan is developed with you. It will enable you to access the resources and technologies that will help increase your profitability and set your company on the right track to a low carbon, efficient future.



Scoping

The initial exploratory meeting with our Eco-I NW experts will help understand your low carbon challenges and determine the level of support your business will best benefit from.



Implementation

The appropriate Eco-I NW academics, researchers, graduates and students will implement your action plan. Overseen by the Eco-I NW team, they will assist with every step; implementing new or improved technologies, processes or wider research as well as applying for specialist funding or investment where necessary.



Monitoring

Eco-I NW will monitor the project and help identify business improvements and carbon reductions made. They will lead on administration and support – ensuring the success of the project for all involved.



Reduced Carbon Emissions



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Working with the Eco-I NW team and LJMU has been another great experience, we have worked before with the low carbon teams at LJMU and wouldn't hesitate to recommend to any businesses looking to gain a competitive advantage in the low carbon sector.

Plastic lamination of posters and communications is a big problem, essentially, you're taking two recyclable products in paper and plastic and creating an unrecyclable encased product.

We knew our product Post-Ease could cut a huge amount of carbon, but after testing and modelling, it was even bigger than we imagined. Now our product has the data and testing to back our claims and we can really start reducing carbon emissions for organisations and the country as a whole.

James Maddocks, Company Director

Radwraps

Radwraps is an innovative print company based in Southport who have been developing a new product that offers an alternative to laminated posters.

Laminated papers are a hidden source of non-recyclable and non-biodegradable plastics that ends up in landfills and will ultimately take hundreds of years to decompose.

As a solution, Radwraps Ltd have developed Post-Ease - a self-adhesive poster provider that will offer a modern and environmentally friendly alternative which is self-adhesive, leaves no residue, can be cleaned clinically and has an anti-microbial coating. Post-Ease posters are 100% recyclable and will significantly reduce the burden of cutting trees to produce papers. They will also eliminate the CO₂ emissions associated with energy consumed during the lamination process.

In order to market the product to organisations, especially large ones such as the NHS, the company needed to be able to evidence the environmental impact of their product. Eco-I NW and Radwraps embarked on a research collaboration, to evaluate the environmental benefits of their product in comparison with laminated paper to validate the sustainability of the product.

This support has enabled Radwraps to validate and commercialise their product. The company are now bringing the product to market and using the research to support the development of a business case for the NHS to adopt their product in some Merseyside hospitals.

Flutter Shutter

Flutter Shutter is an award-winning female run energy efficiency company which has been operating for over 13 years in the city of Liverpool.

Flutter Shutter's energy-efficient plantation shutter blinds incorporate a clear thermal material, which acts as a parallel to triple glazing and draught-proofing. Flutter Shutter has also been tested by BRE and awarded a SAP Rating and U-Value that is parallel to triple glazing and will increase the EPC rating of a property.

Utilising renewable technology, Flutter Shutter developed an innovative range of blinds & shutters using materials which hold thermal and heat conductive properties. The business wanted to test their product prototype in situ and undertake an analysis of its proposed market. The objective was to determine the suitability of the proposed material for use in the flutter shutter system, along with understanding product performance and potential energy savings.

Eco-I NW collaborated with a local housing association using state-of-the-art sensors to analyse the effectiveness of the Flutter Shutter blind prototypes in different occupied accommodation types and test the product in real world conditions. This enabled the company to verify energy and carbon savings of their product in real terms and move the product along the Technology Readiness Levels to launch it to market.

Whilst changes in product design in the blind and shutters market can bring about economic benefits, Flutter Shutter's product design directly reduces noise pollution, carbon emissions and fuel poverty.

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LJMU has been a pivotal part of our growth and success. They have given us invaluable information on product developments and market research which will help to grow our business exponentially.

Nadine Griffin, Director



Innovative Road Safety Solutions (IRSS)

IRSS provides traffic light covers that are manufactured from recycled materials, giving protection against harsh operating environments and a variety of road signage products to highways sector businesses.



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LJMU have a great team who helped and supported my business. Their skilled and knowledgeable staff did various tasks with me to help me look at the bigger picture and how we could improve our business plans going forward especially on the environmental side of the business. I would highly recommend the Eco-I NW team to any business.

Peter Hoban, Founder

The IRSS range includes bagging off solutions for road signs, Belisha beacons, bollards, street lighting columns and pushbuttons.

IRSS are based in Waterloo, Liverpool. The business suffered due to the COVID-19 pandemic, limiting access to international markets and long-term sustainable advantages. IRSS sought assistance from Eco-I NW to devise an international marketing plan focusing on penetration and access to markets in Brazil and New Zealand and researching trademark protection for the IRSS brand name 'Cover Me'.

Eco-I NW's tailored programme included assisting with commercialisation support underpinned by an international marketing plan. This included collaboration with the Department for International Trade through hosted trade delegations. The concepts of market penetration also investigated e-commerce and website design. Additional research was conducted on trademark protection. It became apparent that the registration of a trademark is a lengthy process.

That said, the road furniture sector is clearly experiencing a period of remarkable growth. The next challenge is to penetrate international markets by enhancing the unique selling points of the product. This will be realised through attending international trade fairs and exhibiting the products, potentially attracting interest, sales, and networking opportunities.

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Working with LJMU through the Eco-I NW programme we are driving innovation forward to explore how we can apply our product to other applications in other market sectors and measure environmental performance, success and benefits.

This is an exciting opportunity to access world-class academic expertise and facilities for innovation, measurement and developing solutions, which will have a lasting impact on the environment, while supporting the growth of the business.

Colin Pardoe, Managing Director



Fibrestar Drums is proud to be the largest supplier of fibre drums in the UK, delivering innovative, packaging solutions across the globe.

The company were conscious of the challenge plastic pails pose to the environment and are developing a paper-based fibre drum to package powder, solid and hazardous products, as an alternative to traditional plastic pails. Fibrestar did not have a carbon lifecycle analysis of the innovative fibre drum product and were unable to fully validate its environmental claims. The scalability of the product relies on its environmental credentials.

Eco-I NW collaborated with Fibrestar to conduct a carbon lifecycle analysis of the fibre drums and compare this with the CO₂ impact of traditional plastic pails. Research indicated that the carbon footprint of a plastic pail is around three times higher than that of the fibre drum, with the drums producing 66% less CO₂. The drum can also be zero waste, helping soil enrichment which acts as a carbon sink.

This enabled the company to fully understand the environmental benefits of the fibre drum, communicate this effectively to customers with an independent credible assessment of the environmental impact and support the company's business customers.

Fibrestar Drums

Fibrestar Drums is a packaging company which designs and manufactures packaging solutions providing economical, high-quality, versatile packaging to business customers.

Used Kitchen Exchange Ltd

Used Kitchen Exchange (UKE) is a UK-based business specialising in the resale of used and ex-display kitchens.

After buying their own used kitchen, the business founders saw the opportunity to change how the industry operates, pioneering sustainability and contributing to a low carbon, circular economy.

Having developed a calculator for trees saved from the reuse of kitchens, UKE approached LJMU for an evaluation and validation of their calculator. Eco-I NW assisted UKE to develop an alternative calculator, with the aim of supporting the company to improve its sustainability profile.

Eco-I NW produced a carbon calculator with tree saving, which made for better and more impactful trees saved calculations. This enabled the business to add new material or change the dimensions of the tree, to better gauge the age of trees when harvested. The total number of trees saved by UKE customers currently stands at 6,080.

Following this, UKE were awarded the Queens Award for Sustainability 2022 and Barclays Entrepreneur Award for Sustainability 2022. The business is now looking to rebrand to 'Rehome', to include bathrooms, bedrooms, and fitted/unfitted furniture. UKE have partnered with Magnet and are in the second phase of implementation in 8 stores, 'Rehome or Recycle'. UKE were also awarded the Most Impactful Business Innovation Award at the Eco-Innovation Awards 2023.



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The work that Eco-I NW has undertaken will allow us to quantify and demonstrate how the kitchen industry can operate more sustainably.

Phil & Helen Lord, Founders

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It has been a great pleasure and privilege working with Eco-I NW and LJMU researchers. This has enabled us to make informed decisions about the development and sustainability of the latest ingredients of our new product. I would encourage all businesses to look at working with LJMU and see how much they can help your business.

Paul Griffiths, Director



Real Sphere Eco World supplies businesses in the hotel, hospitality, maritime and cleaning services industries.

During the development of their OCCIDERE product, Real Sphere Eco World enlisted Eco-I NW's assistance to evaluate the sustainability of this new set of ingredients. Support was offered to the company in the form of a piece of desk research on the environmental impact of the new ingredients.

Eco-I NW and LJMU researchers collaborated to enable the company to make informed decisions about the development and sustainability of the ingredients of the new OCCIDERE product and to assist with the marketing. This desk study evaluated existing literature, data and DEFRA's Green Claims Guidance to determine the environmental effects and qualities of the products and how to use and dispose of them. Environmental claims help consumers make informed choices, raise awareness of the issues, enhance consumer understanding and improve product standards.

At the same time, businesses like Real Sphere Eco World can enhance their credentials and demonstrate that they are acting responsibly to consumers, other business partners and regulators. Their OCCIDERE Biofilm disruptor product was awarded the Technology and Innovation Award at the Mersey Maritime Industry Awards, 2022.

Real Sphere Eco World

Real Sphere Eco World Ltd develops and produces wholesale, eco-friendly cleaning products, designed, manufactured and bottled in the UK, containing biodegradable components and packaging.

Crosby Coffee roasts and brews coffee in the Crosby community, delivering coffee to lots of businesses on a weekly basis. The business is committed to green production and reducing carbon emissions.

The business owners wanted to understand their current carbon footprint and find ways to adjust the business to reduce their carbon emissions. The Eco-I NW research team at LJMU partnered with Crosby coffee to help them understand their carbon emissions by producing a report and recommendations.

The carbon footprint calculation was done based on the available information for electricity, water, waste, gas and business transport. Waste information was obtained from estimated values provided by waste collection companies and records provided. Recommendations included lowering carbon emissions, switching to a renewable energy provider (if installing solar panels is not possible at this stage), installing solar photovoltaic systems, presenting significant opportunities for high impact and a quick repayment and installing an energy efficient boiler.

This enabled Crosby Coffee to continue their excellent progress as a sustainable business, developing relationships with farmers and eliminating plastic in their coffee shops and roastery.

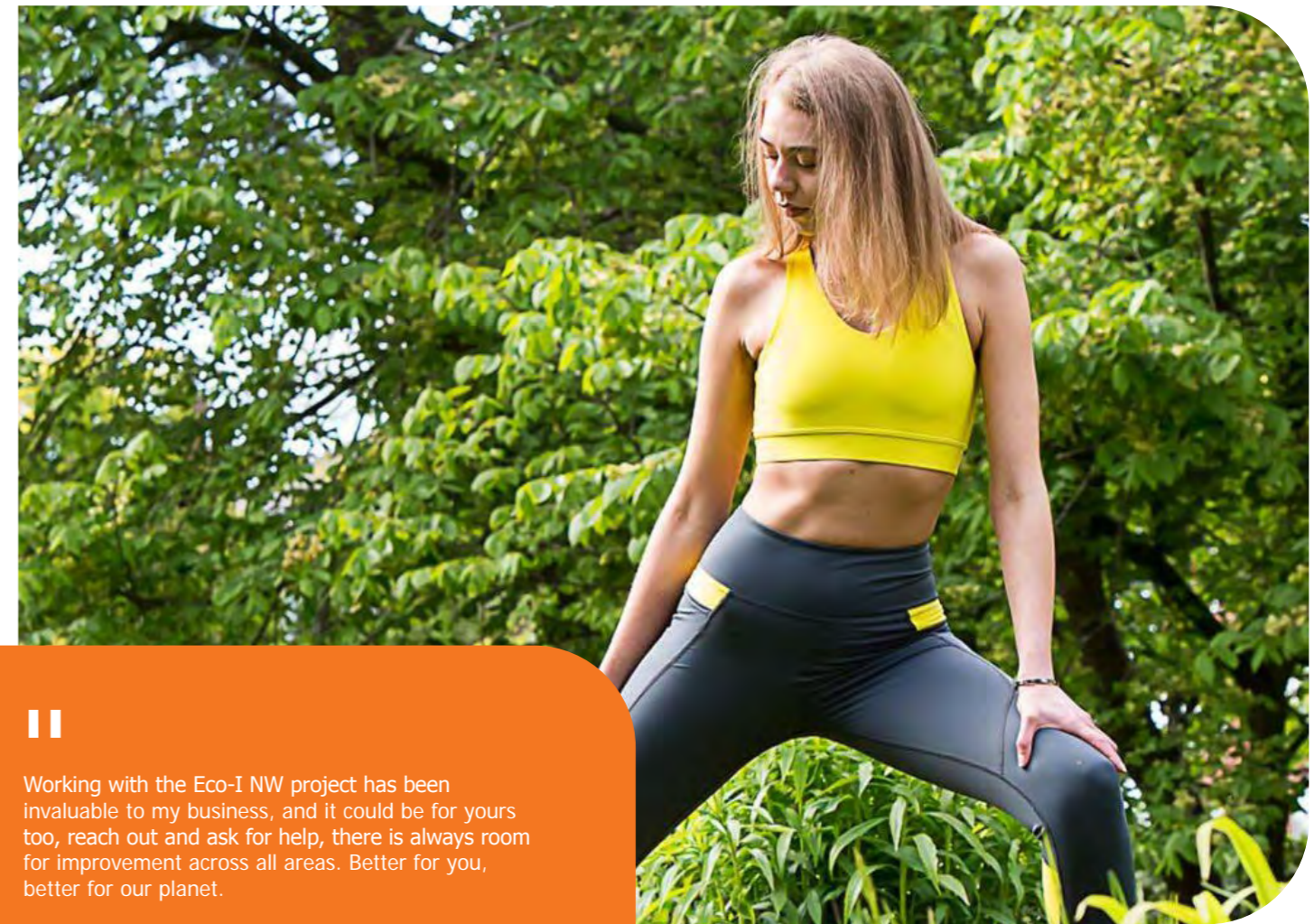
Crosby Coffee

Crosby Coffee is a Micro Artisan Coffee Roaster and Coffee House located in Crosby and South Liverpool.



It has been an absolute pleasure working alongside the Eco-I NW research team at LJMU, it has allowed us to make conscious decisions on our growth and put us in a better position to move forward with our goals of becoming a carbon zero company and B Corp certified.

Jack Foster, Founder and Co-Owner



Working with the Eco-I NW project has been invaluable to my business, and it could be for yours too, reach out and ask for help, there is always room for improvement across all areas. Better for you, better for our planet.

Kate Hill, Owner

Lola Starr

Lola Starr is a premium clothing brand for adults and children.

Established in 2018, Lola Starr's modular fashion clothing items have detachable pieces, allowing room for growth, seasonal transition and easy alteration to suit changing needs and tastes over time. All items are designed and manufactured in the UK.

Lola Starr sought assistance from Eco-I NW to help develop a commercialisation strategy for their sustainable athleisure wear range, with the aim of helping them flourish in the business to business (B2B) marketplace.

The business owner had goals to generate more revenue by getting her products further afield to reach her target customers. Eco-I NW provided assistance by undertaking a company review and conducting market research to determine the issues and strategic options. This included a supply chain carbon assessment calculation. The goal was to drive more wholesaling to other UK independent boutiques and sustainable clothing brands, both online and offline, through marketing and brand awareness, by highlighting the product life cycle of the carbon footprint, in comparison to other products.

Together, Eco-I NW and Lola Starr developed a digital strategy & digital readiness assessment. This included complete digital diagnostic with the support LCR 4.0 START projects, a review of current products available on the market and continued access to academic support with the assistance of Graduate Futures, Business Clinic and LJMU-funded Discovery Internships.



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My experience with LJMU and their research has been great. Not only have I been able to have my products tested by scientist, this will also open doors for me to sell my products to a wider market as I can use the research as a catalyst. In the future I hope to bring my whole production to Liverpool and make Bleachy Clean even more sustainable.

Danielle Pownall, Owner

Peggy Mays

Peggy Mays retails a wide range of customised sustainable workwear items to a variety of businesses.

Peggy Mays aims to help its customers move away from the world of fast fashion, with the added benefit of reducing their carbon footprint, whilst offering value for money in terms of product performance.

The unique selling point of Peggy Mays is an innovative solution whereby workwear aimed at cleaning companies and hair/beauty salons is made from recycled polyester and coated in Teflon, which works on all fabric types by surrounding each fibre with an invisible molecular shield, guarding against oil and water-based stains, dust and dry soil.

To this end, the business sought assistance from Eco-I NW to research and develop a commercialisation strategy for their sustainable athleisure wear range. This included a controlled experiment in the lab and a carbon footprint/lifecycle study on the materials to test efficacy. The results concluded that all garment items except the bag are resistant to the cleaning products and will not show discolouration if they come into contact with the liquids. This reduced the need for customers to dispose of uniforms once stained, offering value for money, as these are much longer lasting and extend the products lifecycle. This gave the added benefit of reducing Peggy Mays customers carbon footprint.

E-Sign UK Ltd

E-Sign is a secure document management contract automation company based in the Liverpool city region.

E-Sign specialises in providing an e-signature platform that accelerates agreement processing by eliminating manual tasks such as posting. The business was interested in quantifying their environmental impact, especially when it comes to the environmental impact that processing digital documents have. E-sign wished to benchmark this environmental impact and compare the impact of their service to traditional paper-based activities.

To fulfil these requirements a systematic review and update of the 2015 report titled 'The Financial and Environmental Impact of Digitalising Paper Documents in Various Industries' was conducted. This review took account of the global impact of the COVID 19 pandemic, geopolitical uncertainty due to the conflict in Ukraine and localised industrial unrest, all of which adversely impacted cost and supply chain disruption.

The project provided E-sign with a carbon calculation to measure postal services in relation to sending emails, estimated greenhouse gas reductions and estimated carbon dioxide equivalent reductions. A final research report was produced, entitled 'Digitalising Paper Documents in the Legal Sector 2022'. To ascertain the impact of economic uncertainty and the fluctuations in carbon conversion factors, it was recommended that this report be updated on an annual basis.

The research found that medium-sized law firms could collectively save £336m each year and cut carbon emissions, if they digitise slow and expensive paperwork.

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It was fantastic to work with LJMU on this report into the digitisation of paper documents in the legal sector, with the study showing tangible financial and environmental benefits of implementing digitisation. Through their support with conducting this research, we've been able to demonstrate that change can be met with wider efficiency and sustainability benefits.

Tom Taylor, Managing Director



Rooted in nature and elevated through innovation, Cheshire Botanicals uses on-site vertical farming technology to grow herbs and botanicals such as lemon thyme and lavender, which contribute to gin recipe development.

Cheshire Botanicals approached Eco-I NW in a bid to make the business more sustainable in terms of packaging, labels and glass bottles. The company required research to be carried out on sustainable and eco-friendly labels and alternatives to glass bottles for the spirits industry. Eco-I NW was ideally placed to assist to provide support, direction and recommendations to enable Cheshire Botanicals to reduce its energy consumption and become more sustainable.

Further research focused on UK glass bottle manufacturers, as Cheshire Botanicals previously required to import glass bottles from Europe, due to demand and economical circumstances. Recommendations were made to switch to bottles with a higher recycled glass content and consideration of a carrier that uses renewable biofuels, which can reduce carbon emissions by up to 80%. Research also highlighted the potential for operational benefits such as shorter lead times and enhanced inventory.

This collaboration assisted Cheshire Botanicals in the path to decreasing transportation and fuel use, in addition to environmental benefits such as reduced congestion and noise pollution, in turn reducing greenhouse gas emissions and aiding climate change prevention.

Cheshire Botanicals Ltd

Cheshire Botanicals Ltd is a family-run spirits business and the home of locally-loved Nantwich Gin.



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It's been great to work with Eco-I NW and explore our carbon impact. Sustainability is extremely important to our family business. Eco-I NW has highlighted areas for improvement and provided suggestions as to how the business can move forward towards the goal of net zero. The support has been insightful and invaluable.

Holly Challinor, Founding Director



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The collaboration between Penny Lane Builders and Eco-I NW has been hugely beneficial to us as an organisation. Not only have we been able to shape the foundation of our Company Carbon Reduction Strategy, through support with a CFA, we have also received valuable research input, helping with the delivery of key retrofit projects. The support provided from all involved has been fantastic.

David Nesbit,
Compliance and Sustainability Manager

Penny Lane Builders has over 20 years' experience in construction and has established a reputation for providing excellent service to the social housing sector.

Penny Lane Builders became increasingly aware of utility costs and sought assistance from LJMU to understand and mitigate operational utility costs. A key aim of the research was to populate baseline data which would underpin the company's future, environmental operating policy and mitigate its carbon emissions.

The collaboration also had the potential to result in benefits such as research collaborations, free dissemination of research, joint and long-term development of new business or services, innovative new products and services being developed, and the formation of joint ventures and spin-out companies.

The role of the project was to enable Penny Lane Builders to understand the current emissions of the business and provide recommendations through access to LJMU expertise and facilities. This complimented the role of the beneficiary, who provided the necessary data to enable the completion of the project and ongoing knowledge exchange. As a result, Penny Lane Builders were provided with a CFA data dashboard comparing Scope 1, 2 and 3 emissions. A detailed carbon footprint assessment was also undertaken, providing the company with robust baseline data to underpin their future environmental strategy.

Penny Lane Builders Ltd

Penny Lane Builders is a general building contractor based in Garston, Liverpool.



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Providing the Big Help Project with a carbon assessment will enable the charity to understand their carbon footprint and going forward reduce emissions as they work towards a Net Zero future

John Mathias, Project Manager, Eco-I NW

Big Help Project’s vision and mission statement is to feed the hungry, overcome poverty, free people from the burden of unmanageable personal debt, help people into affordable housing and assist them into a better future.

For over ten years, Big Help Project has formed a social impact eco-system, to make sure nobody is left in crisis. The project sought assistance from LJMU to calculate their operational carbon footprint to facilitate a more in-depth understanding of their carbon emissions and suggest areas where the company could adopt a more sustainable approach.

The role of Eco-I NW was to develop a carbon assessment for Big Help Project to enable the company to continue its carbon calculations, fully understand the current emissions of the business and provide recommendations through access to LJMU expertise and facilities. This would potentially facilitate a systematic reduction in carbon emissions.

Upon completion, Big Help Project was given a report which contains the carbon assessment of the company and recommendations to reduce the company’s carbon footprint. The company worked closely with the Eco-I NW project team, reviewing the progression of the collaborative research midway through the project and provided the necessary data to enable both the completion of the project and ongoing knowledge exchange.

Big Help Project

The Big Help Project is a registered charity based in Liverpool.

Diverse Grafix

Diverse Grafix specialises in innovative print technologies and printing products.

Diverse Grafix provide video brochures, video tent cards, video boxes and bespoke video and media production for professional print companies of all sizes throughout the UK, Europe and worldwide. Diverse Grafix is committed to green manufacturing. The business developed an air-cooled heat sink for an LED UV curing lamp, mainly for the printing industry. The aim was to understand the embodied carbon in the process for the new system in comparison to the general printing machines available in the market and to identify ways they could adjust their business to reduce carbon emissions.

Eco-I NW provided support and direction to assess the embodied carbon, in the process of LED UV curing systems for industrial printing, providing recommendations to the company to reduce its carbon emissions. Additionally, Eco-I NW helped the business apply for funding to develop a larger prototype.

As a result, Diverse Grafix were awarded £11,000 of Capital Grant funding to develop and prototype a 700mm lamp, which can operate at up to as little as 20% of the energy of conventional UV lamps. PureCure™ Eco LED UV lamps have a lifetime up to 20 x that of other market UV systems, produce no consumable waste and assist companies in becoming carbon neutral.

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We compared the embodied carbon in the new process developed by Diverse Grafix with more traditional processes in the industry to show a significant potential for energy saving and carbon reduction.

Dr Hazha Mohammed, Researcher, Eco-I NW



CCC Waste is a family run business established in 1986, developed from many years of partnerships across Liverpool. CCC Waste, along with LJMU academics, developed a novel Eco-brick/block from waste material that doesn't require cement or any furnace. CCC Waste sought assistance from Eco-I NW to undertake market analysis/potential for the proposed technology, to enable the company to fulfil the requirements for the smart grant application.

Collaborative research was undertaken to determine the market analysis/potential of the developed novel Eco-brick/block. Eco-I NW, alongside academics, produced a report containing a market analysis calculation to be used as partial requirement for the grant application. Data analysis and calculations enabled the company to satisfy the requirements for the smart grant application.

As a result, CCC Waste made a successful application to Innovate UK and were awarded £150k to upscale a novel technology into a circular-economy business model, making CCC Waste the first company to offer such technology with a unique new brick. This technology is 55% cheaper and reduces CO2 emissions by about 45%. This collaboration will also open lots of avenues in the future, in construction materials research and product development.

CCC Waste Ltd

City Centre Containers Ltd (CCC Waste) is a market leader in total waste management solutions, aggregate supply, skips and environmental reporting in Liverpool and the North West.



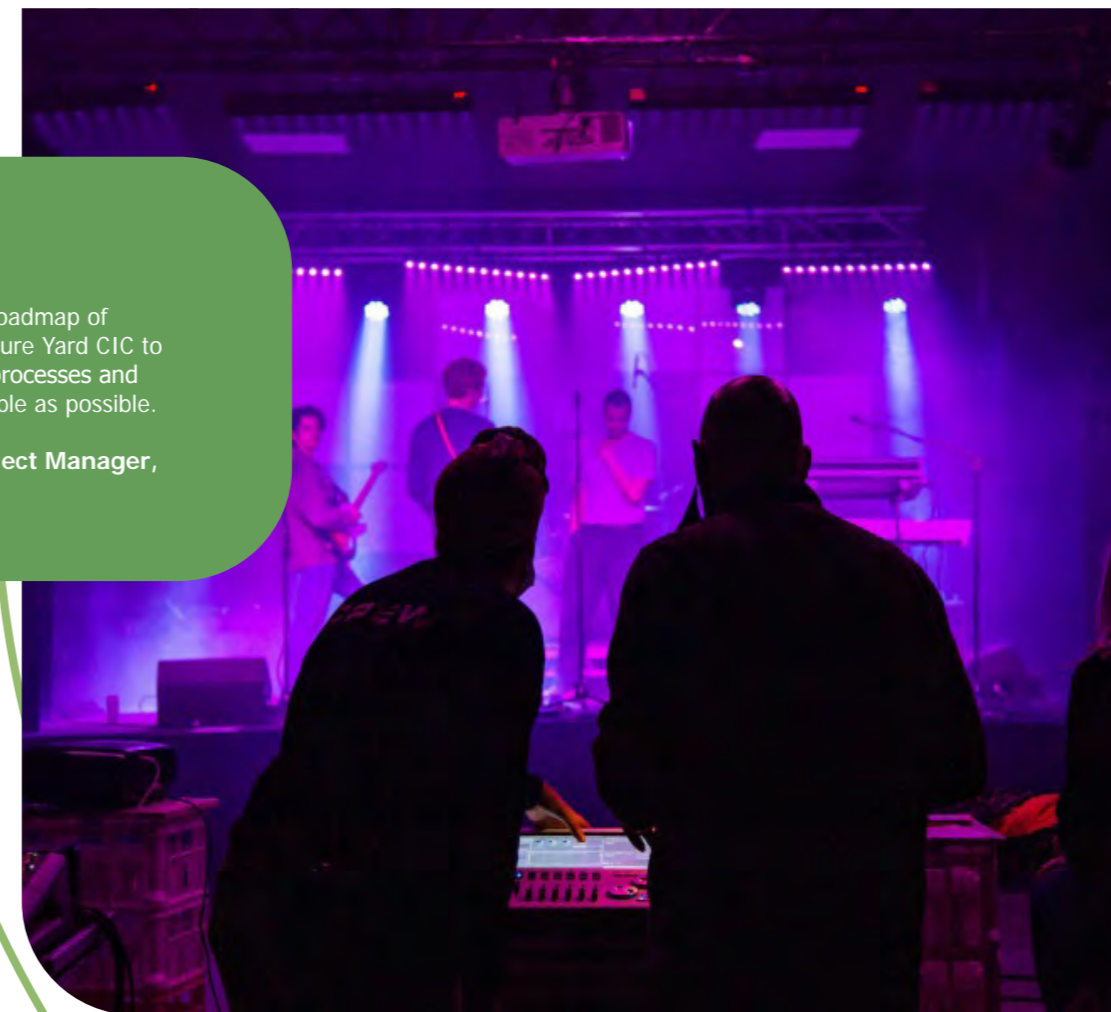
Working with CCC Waste and discussing their problem relating to waste materials was very interesting. After close discussion and receiving the samples from CCC Waste, we were able to develop an innovative technology to convert their waste into a valuable building product.

Dr Monower Sadique,
Reader in Construction Materials, LJMU



Eco-I NW scoped a roadmap of options, enabling Future Yard CIC to make their building processes and practices as sustainable as possible.

John Mathias, Project Manager,
Eco-I NW



The Future Yard venue brings national and international artists to Wirral, providing key early performance opportunities for emerging local musicians.

Alongside their live events programme, Future Yard offers local people the opportunity to develop live audio and production skills through Sound Check; a new industry training programme developed with leading national companies.

The venue is run by Future Yard CIC – a not for profit enterprise focused on making positive social and environmental impact. They are committed to the long-term goal of becoming the first carbon-neutral, grassroots music venue in the North of England and one of the first in the UK.

Future Yard CIC approached Eco-I NW to learn how to make their building, processes and practices as sustainable as possible. The business already had some previous research on examples within the sector and methodology for carbon accounting. Assistance was sought to take this to the next level, with a long-term piece of research around scope 3 emissions.

In support, Eco-I NW scoped a roadmap of options. This included training staff to use a carbon calculating tool to begin capturing data, an active travel app check-in, the development of a PhD proposal in collaboration with Liverpool Business School and a presence from the sustainability projects at the Pop 26 festival.

Future Yard

Future Yard is a 280-capacity community space.



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Eco-I NW gave support testing and validating of the MIDS Solution in situ using the LJMU test bed houses. This concluded that the MIDS solution offers a much-needed tier of security together with an industry platform to improve quality and safety standards. MIDS also has the potential to help IoT Horizon reduce their carbon footprint and contribute to Net Zero.

Dr Ali Shubbar, Researcher, Eco-I NW

IoT Horizon

IoT Horizon is an innovative company using the latest microchip technology to offer new solutions to transform businesses and solve complex technical problems.

The MIDSSAFE team at IoT Horizon developed MIDS (Material & Insulation Detection System); a digital solution for auditing insulation. The MIDS solution is a software platform that includes a web dashboard, mobile app and sensors.

The MIDS system aims to combat quality issues and improve safety and integrity in all industry sectors. The necessity for MIDS was identified following launch of The Bonfield Review which demonstrated the ongoing shortfalls within the insulation industry. The Grenfell review further highlighted the requirement for a more robust approach to the identification of installed materials.

IoT Horizon required support testing and validating the MIDS Solution. This included testing the end-to-end solution and validating the sensor effectiveness in different environments, materials, read range and sensor types. Eco-I NW supported IoT Horizon by installing the sensors in the LJMU Exemplar Houses and testing and validating the MIDS Solution.

LJMU's final research report concluded that the MIDS solution offers a much-needed tier of security together with an industry platform to improve quality and safety standards. MIDS also has the potential to help reduce the carbon footprint and contribute to net zero, contributing carbon saving and paving the way for more compliant jobs.

Dowhigh Ltd

Dowhigh Ltd is a family run business established in 1975.

Based in Bootle, Dowhigh works with local authorities and private clients throughout the North West. A significant force within the North West construction industry, the business offers a wide range of highway infrastructure and civil engineering specialities undertaken through a combination of skills and experience.

Dowhigh was engaged with reducing their carbon emissions and wished to analyse whether the changes they made to their business had further reduced their carbon emissions over the past few years. Eco-I NW were able to meet this requirement by providing support and direction to assess the carbon footprint of the company and provide recommendations which would enable Dowhigh to further reduce carbon emissions.

The research collaboration with Eco-I NW and LJMU included project scoping, data collection, administration, meetings to discuss project progress and data preparation. Upon completion, the company was given a report containing the carbon assessment of the company and recommendations to help further reduce Dowhigh's carbon footprint.

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We started our partnership with Eco-I NW and LJMU with the aim of starting our sustainability journey, through setting a benchmark for the company regarding our GHG emission. The partnership with Eco-I NW enabled us to set a baseline CO2 emission for the company and we have initiated various initiatives to reduce our footprint. We would like to thank Eco-I NW for nudging us in the path towards sustainability.

Dowhigh Ltd



Healthy Active Lifestyles Ltd

Healthy Active Lifestyles Ltd is a third party physical and environmental education initiative based in St Helens, Merseyside.

Healthy Active Lifestyles specialises in bespoke eco and physical education, sport and fitness and provides these services to private groups, individuals, educational and corporate organisations.

The work carried out by Healthy Active Lifestyles produces positive outcomes in terms of sustainable development and the links with the UN 2030 Sustainable Development Goals (SDGs). The initiative previously received support from Eco-I NW's sister project, Low Carbon Eco Innovatory (LCEI), following which, they wanted to embark on a piece of collaborative research to explore the environmental benefits of a 'walking to school' scheme.

The aim of this research was to assist Healthy Active Lifestyles to make informed decisions about initiating and promoting a walking to school scheme as a service offered to schools, with the aim of promoting active travel and a low carbon lifestyle to young people in the Liverpool City Region. The role of the project was to support the company to collect primary data about walking to school behaviours to enable the researcher to calculate the carbon savings of such a scheme.

Resulting research better equipped the company to make claims about the carbon reductions achieved by a 'walking to school' scheme, enabling them to introduce the scheme as a new service offered by Healthy Active Lifestyles.

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Eco-I NW worked with the business on a piece of collaborative research to explore the environmental benefits of a walking to school scheme, enabling the company to make informed decisions about initiating this as a service offered to schools, with the aim of promoting active travel and a low carbon lifestyle to young people in the Liverpool City Region.

John Mathias, Project Manager, Eco-I NW



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Our involvement with the Eco-I NW project at LJMU really focussed our attention on the businesses carbon footprint. This then lead to a good reduction in our energy usage, with benefits achieved, both financially and for the good of the environment.

Rod Wah, Managing Director



Beverston Engineering Ltd

Beverston Engineering specialises in the prototyping and manufacture of state-of-the-art engineering components for a wide range of industries, including; aerospace, oil and gas and pharmaceuticals.

Safety and accuracy are critical requirements of the components, and Beverston are committed to developing partnerships with existing customers along with creating new business opportunities with clients in high technology industries.

Beverston is engaged in reducing their carbon emissions and needed to analyse whether changes they had made to the business had reduced carbon emissions. Eco-I NW were able to help by providing support and direction to assess the carbon footprint of the company, specifically focusing attention to define Scope 3 emissions and support the company to measure the impacts identified as Scope 3.

Beverston Engineering is a world class manufacturer of precision engineered parts.

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Tests carried out by Eco-I NW researchers on the thermal and acoustic properties on used carpet tiles found hardly any degradation compared to new tiles and provided a viable solution repurposing used tiles and making a significant contribution to the circular economy.

Dr Scott Caldwell, PhD researcher, Eco-I NW



Further Flooring recycles carpet tiles from commercial premises for social housing. This helps reduce 400,000 tons of carpet waste committed to landfill each year, facilitating re-use and creating a circular economy.

Further Flooring are committed to green production and wanted to understand their current carbon footprint during the carpet tile recycling process. Eco-I NW were ideally positioned to match these requirements, providing support and direction to assess the carbon footprint of the company and recommendations to enable the company to reduce its carbon emissions.

The research showed that one tonne of recycled carpet waste saves 4.2 tonnes of CO2 emissions, according to Carpet Recycling UK. Furthermore, as carpet is a petroleum-based material, recycling can save around 700,000 barrels of oil per year, hence conserving 4.4 trillion BTUs of energy.

Through their collaboration with LJMU, Further Flooring were able to; further reduce fuel poverty, improve energy efficiency and residents' wellbeing, improve EPC rating, decrease embodied carbon of households and save carbon from waste to energy and landfill, including thermal retention properties of carpet tiles.

Further Flooring

ECS Electrical

ECS Electrical is a Liverpool based building technical service provider, specialising in electrical, mechanical and plumbing services.

ECS Electrical engaged with Eco-I NW's sister project, Low Carbon Eco Innovatory (LCEI), to explore alternative methods of transport e.g. the use of electric bicycles to access jobs around the city centre. Research found that adopting this mode of transport would dramatically reduce the businesses carbon footprint. For example, the Co2 for a car used on a daily basis for travelling, is 50 tonnes of carbon compared to a bike using a smaller amount of electric, so that even a conservative estimate of 10 bikes in year one will have a reduction in carbon - quantify.

Following this, ECS Electrical required further support around developing their new business model to put them ahead of the curve for future environmental legislation change. Support was offered by the project in the form of financial topics, IP advice for new products, improved carbon literacy knowledge and reduced environmental impact.

Further support was provided on research-led business planning, with a focus on organising business structure around sustainability and research-led marketing on how to effectively market business around sustainability and deliver against the UN Sustainable Development Goals (SDG's). This support better positioned ECS Electrical to adopt new to firm processes that will result in low carbon products or services.

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Research-led business planning and marketing with a focus on organising business structure around sustainability will help ECS Electrical to adopt new to firm processes that will result in low carbon products or services.

Francine Taylor, Researcher, Eco-I NW



Lozio 7 Ltd

Lozio 7 Ltd specialise in manufacturing and supplying a shaving System called Sphynx to the hospitality and beauty industry.

Lozio 7 Ltd specialises in the manufacturing and supplying of a shaving system called Sphynx, to the hospitality and beauty industry. The iHead smooth razor is an innovative cleaning tool, as only 1% of water is required to clean the product, increasing the life cycle of the blade by x 4, saving waste and creating carbon reduction.

Lozio 7 were looking to launch their eco-friendly cleaning tool and the business was confident they had identified a gap in the market, as the new smooth razor shaving system was not currently on the menu in barber's salons. Lozio 7 also sought research and development funding for a second design of the razor, aimed at the high-end hotel industry.

Eco-I NW explored commercialisation and funding opportunities, and looked at ways of future-proofing the business. LJMU academics also conducted research to determine the market for new products. On completion, the business was given a marketing plan which included commercialisation recommendations.

As a result, Lozio 7 were supported to make an Eco-I NW Capital Grant Fund application, which was awarded in March 2023. The funding will be invested in developing a second model of the iHead smooth razor.



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We are in advanced stages of being able to introduce a novel idea to every manufacturer, which is to have a dual function where the faucet doesn't just deliver water, but has a function to clean the razors for those who are shaving.

Laura Lam, Director

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Eco-I NW provided commercialisation support culminating in a successful grant bid and funding to enable Green Bell Packaging to enhance their range of eco-products and integrate further sustainable materials and processes into their business.

Francine Taylor, Researcher, Eco-I NW



Green Bell Packaging Ltd

Green Bell Packaging is a sustainable packaging company based in Liverpool.

Specialising in starch and seaweed-based products, Green Bell Packaging offers environmentally safe packaging options to private and third sector organisations. The products are marketed as containing no traces of polyethylene or polypropylene, are dissolvable, and any non-degradable or dissolved material should be non-toxic to humans and animals if ingested.

The business takes responsibility for supporting communities in taking steps towards a greener lifestyle.

Green Bell Packaging sought to enhance their range of eco-products and integrate further sustainable materials and processes into their business. Time, money and the resources needed to continue their research and development was proving a challenge, so Eco-I NW provided the business with guidance and support to write a bid for the Future Innovation Fund. This support included viewing existing research and development in relation to 'eco' product development, progress meetings, SME networking and direct bid writing support, to apply for both regional (Future Innovation Fund) and national (UKRI) grant funding.

Following on from this, Green Bell Packaging received investment from NPIF – BFS & MSIF Microfinance as part of the Northern Powerhouse Investment Fund, before going on to secure £100,000 on Dragons' Den in 2022.

