

Industrial Symbiosis

Improving productivity through
efficient resource management

Guide for Businesses in Northern Ireland



Introducing the Industrial Symbiosis Service

The Industrial Symbiosis (IS) service works directly with businesses of all sizes and from all sectors. Experienced IS practitioners provide advice, support and guidance to businesses on resource efficiency, legislation and waste management.

Synergy Workshops are a key element of the IS service and facilitate businesses in resource efficiency and industrial symbiosis. We also partner with trade and research organisations to bring innovative and specific solutions to businesses.

The IS service has been operating in Northern Ireland since November 2007 and has achieved the following benefits to members¹:



Cost savings: £9m
Additional sales: £13.5 million
Private investment: £1.88 million



33 jobs created
45 jobs safeguarded



Diversion from disposal: 202,089 tonnes
CO₂ reduction: 261,510 tonnes

This booklet provides some examples of best practice in Industrial Symbiosis involving Northern Ireland businesses.

¹ The figures reported are based on actual data gathered by the companies involved in synergies.

How it works: Synergy Stages

Idea

IS service identifies organisations with redundant resources and synergy potential. Potential matches are identified from our database.

Discussion

Organisations are introduced and enter into discussions to investigate viability of synergy.

Negotiation

Organisations negotiate a deal to allow the synergy to progress. IS service helps to overcome obstacles to ensure success.

Implementation

Any required trial is completed and a deal is agreed. Resource flow between organisations is initiated.

Completion

IS service verifies cost benefit data: CO₂ reduction, landfill savings, job creation and investment generated. This is used as the basis for development of a case study with agreement from both parties.

How it works: Here to help

By identifying profitable links between its members the IS service ensures that previously unused or discarded resources from one organisation are recovered, reprocessed and reused by others.

Following a site visit, attendance at a Synergy Workshop or in response to a direct enquiry, an IS practitioner will record details of available or wanted resources on our SYNERGie database. SYNERGie will identify and record potential resource matches and these will be used by the practitioner to make introductions between organisations.

Practitioners are available to advise on all aspects of resource efficiency and synergy progression helping to overcome obstacles and making new introductions where necessary.

All IS member organisations are encouraged to report successful synergies to the IS service so that the success of the programme can be monitored and reported to stakeholders.

There is no charge for using the IS service. Industrial Symbiosis activities in Northern Ireland are supported by Invest Northern Ireland and part financed by the European Regional Development Fund under the European Sustainable Competitiveness programme in Northern Ireland.

How to get involved

Does your organisation have or want any of these resources? Check them off and contact us. Some other business on our database of over 1,700 companies in Northern Ireland and 14,000 across the UK will want what you have.

| Resource Prompt List | | | | | |
|-----------------------------|------|------|---------------------------------|------|------|
| | Have | Want | | Have | Want |
| Packaging Waste: | | | Capacity: | | |
| Cardboard | | | Laboratories | | |
| Drums | | | Land | | |
| FIBCs | | | Transportation | | |
| Glass | | | Warehouses | | |
| Pallets | | | Redundant Equipment: | | |
| Paper | | | Electrical Equipment | | |
| Plastic | | | Process Equipment | | |
| Process Waste: | | | Office Furniture | | |
| Filters - air, oil & others | | | Kitchens | | |
| Food wastes | | | Vehicles | | |
| Fuels | | | Construction/Demolition: | | |
| Heat | | | Soil | | |
| Metals | | | Clay | | |
| Plastics - rigid | | | Aggregate | | |
| Plastics - soft | | | Plasterboard | | |
| Paint | | | Timber | | |
| Process water | | | Expertise: | | |
| Shot blast | | | Consultancy | | |
| Sludge | | | Knowledge | | |
| Steam | | | Skills | | |
| Swarf | | | Training | | |
| Wood | | | Other Resources: | | |
| Contaminated soils | | | | | |
| Chemicals: | | | | | |
| Acids | | | | | |
| Alkalines | | | | | |
| Batteries | | | | | |
| Oil absorbents | | | | | |
| Oils | | | | | |
| Solvents | | | | | |

Manufacturing

Northern Ireland has a place on the global stage: its manufacturing heritage is present in the story of the modern world, from building the largest object ever to move at the beginning of the 20th century (Titanic), to revolutionising the world of farming (Massey Ferguson) to creating the tyres (Dunlop) that gave people mobility and providing the textiles and clothing that kept us warm and comfortable.

General manufacturing today is a diverse sector including the production of wood and construction products, plastics and rubber products, electronic equipment, domestic appliances and furniture. Sales for the sector in 2012-13 amounted to £4.8 billion, almost 70% of this being generated outside of Northern Ireland.

The diverse range of business activity across general manufacturing raises an equally diverse range of sustainability and resource efficiency issues for these businesses. They utilise a wide range of raw material inputs, a multitude of manufacturing processes, often use large volumes of water and chemicals and generate waste, effluents and emissions to atmosphere.

Industrial Symbiosis works well across sectors but even within general manufacturing there are opportunities to establish synergies that improve resource efficiency and profitability as the following case studies demonstrate.

If you are inspired by any of these case studies or have a particular waste or resource issue then contact the Industrial Symbiosis service for help.

ThyssenKrupp Aerospace UK Ltd

Based in Newtownards, ThyssenKrupp Aerospace focuses on supplying aluminium alloy technology solutions to the local aerospace sector.

The company receives raw materials covered in PVC weatherproof tarpaulins and this protects the material during transit. The tarpaulins were being sent for disposal to landfill until the IS service identified a more cost effective and environmentally sustainable solution for the material. ThyssenKrupp was introduced to Belfast based Tedfords Ltd which manufactures bespoke products for the boating, banner and trailer markets.

This synergy has achieved cost savings and additional sales for both companies. ThyssenKrupp has not only improved its environmental credentials in line with company policy but also found a sustainable solution for a reusable resource. Tedfords has found an additional source of raw materials by utilising the skills of its workforce to reuse and rework the PVC sheets into new products like boat covers and trailer tarpaulins.

“Working with the Industrial Symbiosis service has shown us the value of segregating materials for reuse and recycling. We will continue to use the IS service to find effective sustainable solutions for other packaging from our incoming materials.”

Andy Scott,
ThyssenKrupp Aerospace UK Ltd

Charles O'Doherty & Sons Ltd

The coffins that are manufactured by Charles O'Doherty are hand finished to a high standard. During an Advisory Visit from the IS service the company asked if it was possible to find an alternative to textile trimmings for use in the padding of coffins and coffin pillows.

The IS service was able to introduce the company to Confidential Services Ireland. This company was looking for an alternative to landfill for the fines that were produced after baling during their confidential paper shredding process.

This synergy has benefited both participating companies. Charles O'Doherty has a convenient source of suitable padding materials while Confidential Services Ireland has found an outlet for its paper fines that would have gone to landfill.

“Finding a local supply of padding has been an ongoing issue for Charles O'Doherty & Sons. It is always helpful to find these within Northern Ireland. The IS service has provided an introduction to CSI that works well for both companies.”

Charles O'Doherty,
Director, Charles O'Doherty & Sons Ltd

Regency Carpets Ltd

Traditionally Regency Carpets manufactured carpets using a polypropylene/wool fibre mix. The manufacturing process generated several challenges including 120 tonnes per annum of scrap mixed fibre yarn. This is a synthetic, natural fibre mix and it was difficult to find a reuse or recycled outlet within Northern Ireland.

After tufting, the carpets are trimmed into their final width; this process generated 600 tonnes of carpet trimmings per year. Both of these resource streams were being landfilled. Regency Carpets worked in partnership with the IS service to establish viable outlets. The initial breakthrough came when the company changed its yarn from a polypropylene/wool mix to 100% polypropylene. The scrap yarn fibre is 100% recyclable and no longer a liability but an asset that can be sold as a by-product from the manufacturing process.

Now that the yarn is 100% synthetic the 700 tonnes of carpet trimmings and rejects generated during manufacturing are baled and sold for reprocessing to companies in England and Ireland. The carpet waste is shredded and reconstituted to manufacture alternative products.

“Being a part of the IS network has brought new opportunities to improve resource efficiency and competitiveness within Regency Carpets.”

David Spencer,
General Manager, Regency Carpets Ltd

The Benefits

Additional Sales: £62,030

Cost Savings: £105,140

Landfill Diversion: 1,198 tonnes

CO₂ Reduction: 22,193 tonnes

Engineering

Northern Ireland has a rich tradition of engineering excellence. Engineering is our largest manufacturing sub-sector, particularly in the fields of aerospace, transport and heavy machinery.

Our strong engineering heritage is known the world over with names such as Bombardier, Wrightbus, NACCO, Terex recognised for engineering excellence and innovation.

Rapid advances in technology, communication and knowledge have forever transformed the economy in which our companies operate – presenting us with significant challenges, but also bringing unprecedented opportunities to perform and drive profits on a global scale.

Engineering and manufacturing form the cornerstone of Northern Ireland's economic performance and competitiveness. Competing on a global scale means being the best in all areas of design, manufacture and distribution and, critically, being resource efficient – making more with less waste. Industrial Symbiosis has already helped many companies in the engineering sector and could help your business reduce resource consumption and costs.

McAuley Engineering

McAuley Engineering is a premier supplier of sheet metal parts. When the company relocated to its current site, a heating system had to be installed in the workshop area. The company preferred to heat that area with a sustainable heating system rather than oil or gas and required advice to help install the best solution.

McAuley was introduced to another Industrial Symbiosis service member, Waste End Strategy (WES). WES aims to assist companies to find environmentally sustainable and cost effective solutions to their problems. After initial discussions, heating requirements were established and waste wood burning heaters were identified by WES as the best option. Two Talbot 150kW space heaters were installed.

WES, through using the contacts supplied by the IS service, secured contracts to supply clean wood suitable for use as a fuel. WES advised and guided McAuley through the required legislation to allow them to collect the wood, that would otherwise have gone to landfill, as a sustainable fuel source.

“Through being introduced to the IS service by another member we were able to use the help and expertise already available from professionals within the IS service network.”

Jonathan McAuley

The Benefits

Landfill diversion: 192 tonnes/year

Private investment: £20,000

Cost savings: £14,000

Ryobi Aluminium Casting (UK) Ltd

Ryobi manufactures high quality, technically complex cast aluminium products mainly for the automotive industry. Ryobi contacted the IS service to find a solution for a quantity of redundant plastic packaging dividers made from high density polyethylene (HDPE).

The IS service introduced Ryobi to Renewable Products Ltd, a company located close to Ryobi and able to take the material for reprocessing into a reusable resource. The two companies completed an environmental and economically successful synergy, which demonstrates the value of involvement in the IS service.

Ryobi has been able to maintain its health, safety and environmental credentials while saving money and avoiding landfill charges. Renewable Products Ltd was able to make profit by selling the HDPE recyclate to other companies for the manufacture of new products.

“It has been of great benefit to Ryobi to be part of the IS service. We take pride in our environmental credentials and finding a recycling solution for the plastic packing dividers means we can continue to meet our sustainability targets.”

Graham Coulter,
Integrated Systems Superintendent.

Ryobi Aluminium Casting (UK) Ltd



Cornerstone Automation

Cornerstone Automation Systems International (CASI) is a global company which designs, manufactures and installs bespoke resource efficient material handling, packaging and manufacturing automation systems. In November 2010 CASI contacted the Industrial Symbiosis service and registered its capacity to manufacture conveying and automation systems.

Frylite contacted the IS service showing interest in an upgrade to its bucket transfer line. Pallets loaded with buckets of cooking oil were handled manually from one room to another. Frylite wanted to modify this process in order to avoid health and safety risks while improving production efficiency.

The IS service introduced the two companies with the result that a bespoke roller conveyor system was designed and installed to transfer the buckets through the wall. With this synergy Frylite now reduces labour and production costs while CASI found an opportunity to achieve additional sales with a new customer.

“Being part of the IS service and attending the Synergy Workshops has enabled us to network and share our innovative, resource efficient systems and technology with companies in all sectors of Northern Ireland.”

Sean McNicholl,
Managing Director, CASI (UK)



Food & Drink

Food and drink is a sector with enormous potential for growth within NI and export markets. It is our largest indigenous industry, our biggest manufacturing industry, our largest single employer and most important exporter (£2.6 billion external sales in 2010).

It is one of the few industries to have recorded sustained growth during the recession. NI employs 27,000 in food and drink processing and a further 47,000 in farming.

International Synergies (NI) Ltd helps businesses in this sector by developing channels to recover value from the by-products of food and drink production, food waste and resources lost in processing. Wasted resources are prevented from going to landfill or waste treatment reducing the carbon footprint, improving resource efficiency, reducing operating costs and improving competitiveness.

Linden Foods

Linden Foods processes top quality beef and lamb. Its modern processing plant can slaughter and process 1800 cattle and 4000 lambs per week.

Linden Foods supplies meat products to major supermarket chains such as Tesco, M&S, Dunnes, Centra and Musgrave Supervalu. Being one of the market leaders in the food sector Linden likes to be an example in the area of environmental and corporate social responsibility.

Linden Foods was recycling its cardboard and wood packaging waste. Following the Advisory Visit by an IS service practitioner, the company began segregating and recycling diverse plastic packaging waste and cans through an introduction to McAtee Recycling.

“Linden Foods Ltd is committed to reduce the total amount of its waste sent to landfill through resource efficiency, waste minimisation and recycling. The IS service provided effective support and contacts to improve our waste management and handling practices on site. We are very pleased with the results of this project.”

Elizabeth Kerr,
Environmental Officer, Linden Foods

The Benefits

Landfill Diversion: 27 tonnes

Cost Savings: £5,700

CO₂ Reduction: 280t

Greenville Energy

Greenville Energy is a family run company that established an AD plant to accept organic materials in 2012. Its AD plant digests farm wastes and grass to produce methane which in turn is used to generate electricity. This provides power not only for the farm but other nearby businesses and homes. Greenville sought the help of the IS service to identify additional sources of organic material such as dairy effluent sludge.

The IS service provided a contact with a local dairy producer. Both companies have achieved significant benefits from this synergy. The dairy producer has found a local cost effective and sustainable outlet for its sludge with additional savings in transportation costs as well. Greenville recognised the importance of securing the long term viability of this synergy and invested in two bulk trailers and a storage shed as well as being able to create a new job for a driver/process operator.

“Diversifying from general construction projects into the construction of AD plants has proved to be beneficial not just for ourselves but for other businesses in Northern Ireland looking for solutions for organic material like dairy sludge. The IS practitioner was able to introduce us to a local producer of sludge and our solution has generated cost savings and additional sales for both companies.”

Jason Mitchell,
Greenville Energy Ltd

JTI Gallagher

JTI Gallagher is a member of Japan Tobacco International (JTI). JTI Gallagher established a Waste Centre at its Ballymena site to facilitate effective management of wasted materials.

After the visit of an IS practitioner a variety of wasted resources were identified including baled cardboard, grey card and cardboard tubes. Two companies with interest in these materials were introduced to JTI. Waste End Strategy could take the baled cardboard and Play Resource provided a reuse outlet for both cardboard tubes and grey card.

“At JTI we value our resources and are constantly looking for ways to improve performance and achieve our waste minimisation goals. Through the IS service introductions we have not only saved money but established excellent working partnerships for the future.”

Firghil Cuning,
EHS Manager, JTI

The Benefits

CO₂ Reduction: 25 tonnes

Landfill Diversion: 10 tonnes

Virgin Materials: 10 tonnes

Hospitality

Hospitality is a significant economic driver for Northern Ireland. It generates wealth, jobs, exports, civic pride and innovation.

It is expected that Northern Ireland will increase visitor numbers to 4.5 million, the employment supported by tourism to 50,000 jobs, and the revenue generated by tourism to £1 billion by 2020. The hospitality sector has a positive impact on the Northern Ireland economy. Hospitality contributes 5.2% of the Northern Ireland economy and supported 43,000 jobs in 2013.

Businesses in the hospitality sector are using good environmental performance as a marketing tool and are seeking to reduce energy and water consumption and to cut down on food and other wastes.

The IS service will work with your team to achieve better resource management and find the best solution for unavoidable waste streams.

Foylehov

Foylehov works within the adventure sports and outdoor activities sector. One of its foremost activities is an outdoor hovercraft track.

The hovercraft track was being damaged at contact areas where the hovercrafts entered and exited the water causing soil erosion. This erosion required continuous soil maintenance to keep the track operational.

Foylehov was introduced to another IS service member Crawford Contracts. Crawford Contracts was working on a project to replace an Astroturf pitch which involved removing large amounts of material for disposal. Foylehov agreed to collect the material from site. After being sorted it was laid in the required areas of the track.

“By using the contacts and resources available through the IS service we were able to source materials that will help us reduce maintenance time and find reuse for a resource that may have been sent to landfill.”

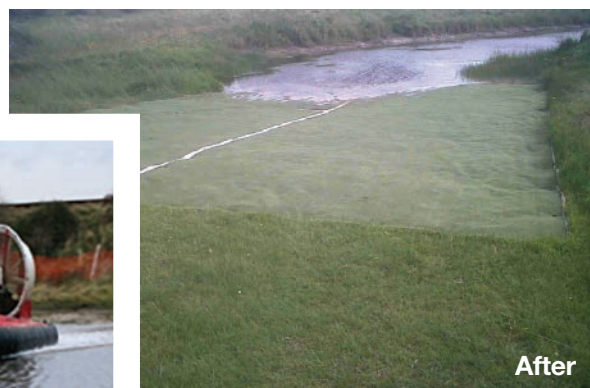
Ian Mark,
Managing Director. Foylehov

The Benefits

Landfill Diversion: 12 tonnes

Cost Savings: £1,800 + saving in soil maintenance

CO₂ Reduction: 153 tonnes



Limavady Linen Services

Limavady Linen Services specialise in the hire and laundering of bed linen and towels for hotel, residential and catering industries. Charles O'Doherty & Sons manufactures hand finished coffins by applying stains using cotton textiles wipes. Charles O'Doherty found it difficult to find a steady source of cotton wipes and was looking for another suitable source of material to use in the staining process.

An IS service practitioner discussed end of life linen and towels with Limavady Linen Services. He found that a synergy could be completed between the two companies and so put them in contact. The linen and towel waste was found ideal for the staining process. A few bags of this material are dropped into the Charles O'Doherty premises when the drivers are in the area. To date Limavady Linen Services has generated additional sales of £640 through this synergy and Charles O'Doherty has found an extra source of wipes.

“Finding a local company that can reuse our end of life materials is a real bonus for us. The IS service provided a valuable introduction to Charles O'Doherty & Sons that works well for both companies.”

Noel Ferguson,
Managing Director, Limavady Linen Services

Best Western Plus White Horse Hotel

The White Horse Hotel was looking for alternative outlets to landfill for a regular supply of packaging waste, cardboard in particular, and redundant furniture in good usable condition.

An IS practitioner introduced the hotel to Peak Environmental, a local recycling company that paid for their cardboard directly. Also, the Assistant Manager attended an IS workshop and was introduced to several companies interested in its waste streams. After a period of discussion and negotiation the hotel engaged LCDI Greenshed to take 2.5 tonnes of furniture which was sold through its charity shops.

The hotel generated additional sales of £300 per year and achieved cost savings of £1600 per year. In total the hotel has achieved a benefit of at least £1900 a year.

The hotel also implemented a programme of staff training and awareness in resource efficiency and waste reduction.

“The Best Western Plus White Horse Hotel, like any other small business, values every penny it can save. It is great to be able to generate additional income from materials we can no longer utilise on site. The IS service has helped signpost us to reliable local solutions for our waste materials.”

Ramona Wylie, Financial Director,
The Best Western Plus White Horse Hotel



Construction

The construction industry is one of the largest industrial sectors in Northern Ireland. Its economic impact is far reaching as every £1 invested in construction generates £2.84 in the wider economy.

The construction sector in Northern Ireland was severely impacted by the economic downturn. But it is not all bad news as the volume of Repair & Maintenance output level in NI construction sectors has remained broadly consistent since 2010 and investment in infrastructure, housing and commercial development is starting to climb.

In the past few years we have seen an increase in the recovery and reuse of construction and demolition waste with, in many cases, rubble being crushed on-site and used as base layers for roads and car parks. Timber and plastics are also recovered for recycling.

We want this sector to grow in a sustainable way encouraging networking and landfill diversion. IS can identify alternative ways of managing wasted resources from this sector. The following case studies provide some examples but there are many other opportunities to improve sustainability in construction through the application of IS.

ATG Services

ATG is a contaminated land and waste solutions provider. Braidwater Ltd is a building company which was involved in a contract for housing development in Belfast and needed help to deal with contaminated excavated ground.

Thanks to the IS service, Braidwater approached ATG Services and explained its aim to reduce costs by diverting the excavated material from landfill. Both companies agreed a strategy involving the removal of 38,304 tonnes of waste:

- 20,340 tonnes went to Island Enterprises where it was tested, processed and returned as inert fill.
- 4,500 tonnes were disposed of as the waste could not be recycled.
- 12,888 tonnes were inert material and used as fill under the NIEA exemption at another Braidwater site.

ATG coordinated and implemented the action plan for Braidwater using the services of other IS service members like Island Enterprises, Anderson Haulage and JNJ Crushing & Screening.

“ATG Services was first involved with the IS service at a synergy workshop and found the programme to be extremely informative. Through the service ATG has developed links with other companies leading to several projects. I would recommend that companies attend an IS service workshop to understand the benefits that can be realized. The process is simple and well thought out and helps organisations to discover new solutions.”

Dr Mark McKinney,
Managing Director, ATG Services (Ireland) Ltd

The Benefits

Additional Sales: £562,000

Cost Savings: £1,200,000

CO₂ Reduction: 2,099 tonnes

Landfill Diversion: 20,340 tonnes

Virgin Materials: 20,340 tonnes

Private Investment: £70,000

Jobs Safeguarded: 26

Jobs Created: 2

Baron Recycling Ltd

Baron Recycling Ltd is Ireland's only specialist recycling company for plasterboard. In April 2009 new legislation was introduced which prevents the landfill disposal of plasterboard waste, a zero tolerance policy has been introduced.

The IS service helped Baron by providing excellent networking opportunities and introductions to other businesses with plasterboard as a waste resource. The synergy opportunities identified have provided a valuable alternative to landfill. The main application of recovered gypsum is as a dressing on agricultural land.

"The IS service has been very helpful in finding sources of waste plasterboard that we can then process to produce products that can be used in agriculture and construction."

Gareth Gault,
Baron Recycling Ltd

The Benefits

Landfill Diversion: 2,781 tonnes

CO₂ Reduction: 284t

RTD Crawford

RTD Crawford is the largest processor of imported timber in Ireland. Much of this is used in the construction sector.

The company also manufactures biomass fuel "heat logs" and animal bedding. The IS service was asked to help RTD Crawford find companies that had waste wood as a resource.

Renewable Products, one of the IS service network members, needed to find a solution for a regular supply of Grade A timber. The IS service introduced both companies and boosted a successful synergy. RTD Crawford received a source of good clean Grade A wood while Renewable Products maintained its commitments to the companies supplying the Grade A timber and safeguarded several jobs.

"Finding regular supplies of Grade A timber for our processing facilities is an ongoing issue for RTD Crawford. It is always helpful to find these within Northern Ireland rather than having to import from Europe. The IS service has provided useful introductions that are mutually beneficial for both companies."

Mark Crawford,
Director Belfast Site, RTD Crawford



Packaging

Every single product that we consume in our daily life involves lots of packaging; whether that is transit packaging such as pallets, drums, boxes and wrap that is used to get products to the point of use or final packaging such as cans, cartons, bags and bottles that are ultimately discarded.

Packaging production and use generates waste and although much of this is recycled there are opportunities to do more. International Synergies (NI) Ltd helps businesses to follow the principles of reducing, reusing and recycling packaging material. By following these principles companies will save money, create employment and improve their competitiveness.

We help businesses across the packaging supply chain and engage with recyclers, producers and manufacturers to find cost effective and sustainable solutions. By working with all the parts of the process we help to improve product and packaging design with the aim of achieving high levels of recycling and recovery.



Nampak Plastics

Nampak Plastics is a leader in the manufacture of high density polyethylene (HDPE) bottles for the dairy industry. One of its plants, located in the Ballymena area, produces 78 million bottles per year.

During the manufacturing process a significant quantity of hard plastic head waste is produced along with a small quantity of off specification product. A similar quantity of single use LDPE plastic wrapping material is also discarded. Due to quality specifications these materials are not suitable for internal recycling.

The IS service introduced Nampak to Ballymoney company, Waste Not Ireland, which provides waste collection and recycling services. Waste Not Ireland provided a local bespoke service for Nampak and has established recycling outlets for these materials ensuring they avoid going to landfill. This is an ongoing and profitable synergy that has created mutually profitable solutions for both companies.

“As a major producer of plastics packaging in Europe, Nampak is conscious of its responsibility to the environment, the implications of its products and its own carbon footprint. Using the Industrial Symbiosis network has allowed Nampak’s newest site in Pennybridge, Ballymena to make connections with local recyclers. Recycling waste material locally has achieved a further reduction to the carbon footprint for the site.”

Jonathan McDowell,
Plan Manager, Nampak Plastics- Pennybridge

The Benefits

Additional Sales: £62,030

Cost Savings: £105,140

Landfill Diversion: 1,198 tonnes

CO₂ Reduction: 22,193 tonnes

Delta Print & Packaging Ltd

Delta Print & Packaging is a strategic packaging supplier company, that delivers supply chain management expertise supported by highly skilled people and industry leading manufacturing equipment.

Following a review of all the waste streams the company was faced with a number of resource issues, particularly silicone backing paper, print cartridges and ink buckets which require unorthodox recycling routes. In addition there were other waste streams such as varying grades of paper, card and composite card with PE windows.

Through the help that the IS service provided, Delta had access to local and sustainable resource outlets that helped to reduce its carbon footprint and significantly reduced costs.

As a result of its engagement with the IS service, Delta has re-thought its waste management systems. Waste streams are segregated and thanks to the help of several IS service members (McAtee Recycling and others), the company has achieved important profitable and environmental benefits.

“Engagement with the Industrial Symbiosis Service, their introductions to other outlets for these materials and attendance at synergy workshops is becoming increasingly beneficial and necessary in the current economic climate. This has helped us to our goal of zero waste to landfill.”

Fergal Doyle,
H&S Manager

The Benefits

Cost Savings: £21,000

CO₂ Reduction: 850 tonnes

Landfill diversion: 170 tonnes

Renewable Products Ltd

Renewable Products Ltd manufactures high quality sustainable products from renewable resources. The company wanted to expand activities and needed to identify additional sources of wood and plastic waste for remanufacture into innovative products.

Through the IS service, Renewable Products Ltd was introduced to a number of companies with supplies of waste wood and waste plastic materials. Other resource streams were identified by IS service: including PVC trailer curtains. The IS service introduced Renewable Products to local companies with a steady supply of these PVC curtains and a recycler in Europe that upcycles this material into designer handbags and satchels.

Renewable Products has extended its product lines to include wood chip and animal bedding products, all manufactured from industrial waste. So far nine synergies have been completed between Renewable Products and 20 other companies including Larne Lough Nurseries, Terumo BCT and Freitag.

“The Industrial Symbiosis Service has introduced Renewable Products to companies that can supply many useful resources. This has enabled us to expand our product range, safeguard jobs and invest in the future of the business.”

Kevin Woodside,
Managing Director, Renewable Products Ltd

The Benefits

Additional Sales: £255,785

Cost Savings: £209,137

CO₂ Reduction: 10,859 tonnes

Landfill Diversion: 2,551 tonnes

Private Investment: £190,000

Jobs Safeguarded: 3

Jobs Created: 1

Social Economy

The social economy sector in Northern Ireland is increasingly well established and diverse. It creates opportunities and training for those who are often most marginalised in society and so reduces the unemployment rate and provides additional skills.

There are more than 500 social enterprises in Northern Ireland, generating an annual turnover of approximately £600 million. Over 12,000 people are employed in the social economy, with a further 13,000 volunteers. The three goals of social enterprises in NI are to:

- Enhance community
- Assist people into employment
- Improve the environment

The following examples show how businesses in the social economy sector have benefited from participation in the IS service. Engagement with social economy businesses provides a good demonstration of community awareness and delivery of Corporate Social Responsibility actions.



Larne Lough Nurseries

Larne Lough Nurseries produces and supplies nursery plants, including living roofs and walls. During the economic downturn, the company sought to establish a social enterprise scheme working with people with health and learning difficulties.

The company was looking for sources of timber for use in a variety of ways and so create job opportunities. In its continuous effort to reduce waste and its environmental impact the company needed some advice on sourcing timber and the requirements for carrying waste.

The IS service pointed the company to NIEA who guided them through the process for obtaining the appropriate licences. Also through the IS service Larne Lough Nurseries was introduced to H&J Martin Ltd. This construction company was looking for suitable landfill diversion for its timber waste, specifically damaged scaffold planks. A total of 6 tonnes of planks were reused. The result was so successful that Larne Lough Nurseries is now looking for additional sources of this type of timber.

“Without the assistance of the Industrial Symbiosis Service we would have spent considerable time and resource on finding timber for our projects. In our quest for sustainability we are delighted with the introductions which this service has given. We have made significant cost savings though this synergy and hope to see this replicated in the future as we develop our services.”

Maureen Hanvey,
Owner, Larne Lough Nurseries.

The Benefits

Additional Sales: £500

Cost Savings: £1,163

CO₂ Reduction: 2 tonnes

Landfill Diversion: 6 tonnes

Zero8teen: Crafty Bitz

Crafty Bitz is a “not for profit” scrapstore which provides affordable creative arts resources, most of them free, to members. Crafty Bitz approached IS service for help in sourcing clean, non-toxic materials.

The IS service circulated the request for clean, non-toxic and innovative materials amongst its NI businesses database. A number of IS members responded willingly to donate a variety of resources. Nine bin bags of shredded paper along with a selection of other materials were collected. Throughout the process the IS service offered advice and support to the companies encouraging them to boost their CSR policies.

“Through our involvement with the IS service RSK has been able to put its CSR policy into practice. We are delighted to be contributing back into the community.”

Aisling McPartland,
Environmental Consultant, RSK Ireland



Craigavon Area Foodbank

The Foodbank operates as a charity and provides in-date non perishable food for individuals and families in crisis.

Already having secured suitable warehouse space, the Foodbank lacked shelving for storing the donated food. The Estates Department at Queens University Belfast (QUB) contacted the IS service looking for a solution for a large quantity of metal shelving.

The IS service introduced the Foodbank to QUB who agreed to remove and transport the shelving to its warehouse within an agreed timeframe. With this synergy QUB avoided costly disposal and skip charges while the Foodbank saved on the cost of purchasing shelving furniture.

“We are so grateful to have been introduced by the IS service to Queens University. Every penny saved from buying shelving is now helping to provide emergency food for families and individuals in crisis.”

Chris Leech,
Craigavon Area Foodbank



EUR-ISA

In its 2020 flagship initiative, ‘Roadmap to a Resource Efficient Europe’ the European Commission highlighted the role Industrial Symbiosis schemes can play in achieving a resource efficient union. The European Resource Efficiency Platform (EREP) further acknowledges the role of ‘facilitated industrial symbiosis’ schemes in “diverting waste from landfill, contributing to the preservation of resources and moving waste up the value chain” and called for the wide-scale implementation of industrial symbiosis networks across Europe.

In response to some of Europe’s leading organisations in the implementation and development of facilitated industrial symbiosis, projects and networks have joined forces to create the European Industrial Symbiosis Association (EUR-ISA). EUR-ISA brings together the organisations responsible for up to 10 established industrial symbiosis programmes and provides the European Commission with a focal point to accelerate industrial symbiosis in Europe in order to generate substantial economic, environmental, and social benefits.

EUR-ISA aims to establish an effective framework to connect the multiple industrial symbiosis networks across European member states for the benefit of industry and governments alike. It provides a knowledge sharing platform enabling the industrial symbiosis networks who are part of EUR-ISA to share data, best practice, innovation, and expertise and enable wide-scale and speedy implementation across Europe based on the proven models of EUR-ISA members.

Founding members of EUR-ISA include organisations from Belgium, Denmark, England, Finland, Hungary, Ireland, Italy, Netherlands, Turkey, and also includes International Synergies (NI) Ltd.

www.eur-isa.org

www.international-synergiesni.com



Invest Northern Ireland Sustainable Development

Opportunities for cost reduction

In the past two years Invest NI's Sustainable Development Team has helped Northern Ireland companies save over £19 million on their energy, resource and waste costs. With their help, your business could benefit from achieving real cost savings, and improve competitiveness, productivity and sustainability.

What can we do for you?

- Impartial advice and information
- Free resource efficiency audits and technical consultancy to eligible companies
- Interest-free Energy Efficiency Loans to finance your new energy saving equipment
- Sharing services, utility and by-product resources that help you save money and can provide a new revenue stream for your business.

To find out more about fantastic opportunities to benefit your company, contact Invest Northern Ireland's Sustainable Development Team.

Invest NI Sustainable Consultancy Framework Categories

| Framework Category | Category Definition |
|--|--|
| 1. Resource Efficiency and Waste Management Systems | This category covers all of the areas of environmental management and efficiency to include Waste Management, Environmental Management, Water Efficiency, Effluent Treatment Systems and Rainwater Harvesting |
| 2. Clean Technologies Systems | This category covers efficient manufacturing systems which reduce business consumption of energy, water and materials |
| 3. Renewable Technology Systems | This category covers all types of renewable energy systems including bio-energy, wind, marine and hydro energy |
| 4. Energy Management and Efficiency | This category covers all Mechanical and Electrical systems associated with buildings and manufacturing equipment to include Refrigeration Systems, Compressed Air Systems, Energy Management Systems, Heat Recovery, Combined Heat and Power, Lighting Technologies, HVAC Systems, Energy Metering and Process Heating |
| 5. Investigation of New Technologies | This category covers all new energy or resource efficient technologies such as absorptive chilling, fuel cells, second generation biomass |
| 6. Packaging Solutions | This category will incorporate for example, packaging design and solutions in terms of light weighting, transit packaging and packaging innovations that can deliver cost savings from reduced use of materials or less packaging waste |
| 7. Environmental Accreditations | This category will cover Environmental Management Systems, Energy Management Systems, Carbon Management, specific Product/Process Accreditations |
| 8. Transport Efficiency | This category will cover efficiencies relating to the transport and distribution of raw materials and manufactured products. For example: this may include efficient route planning, back haulage, void space, driving training in efficiency, vehicle aerodynamics, alternative fuels (bio-fuels, electric) |

Our Team

Our Industrial Symbiosis practitioners have many years' experience and are always available to help your business become more resource efficient.



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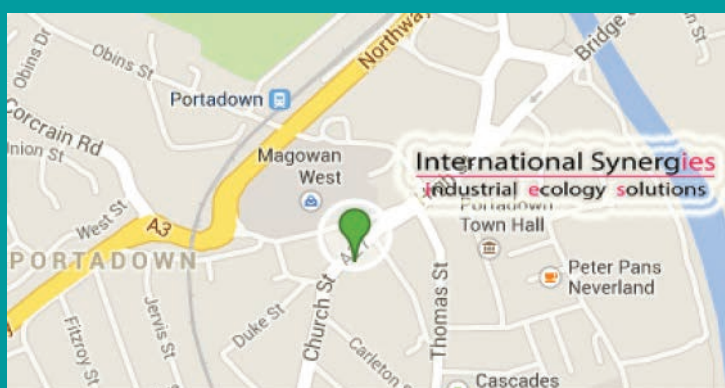
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If you require this document in an alternative format (including Braille, audio disk, large print or in minority languages to meet the needs of those whose first language is not English) then please contact:

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