



# Resource Productivity and the Circular Economy: The opportunities for the UK economy

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SUSTAINABILITY LEADERSHIP

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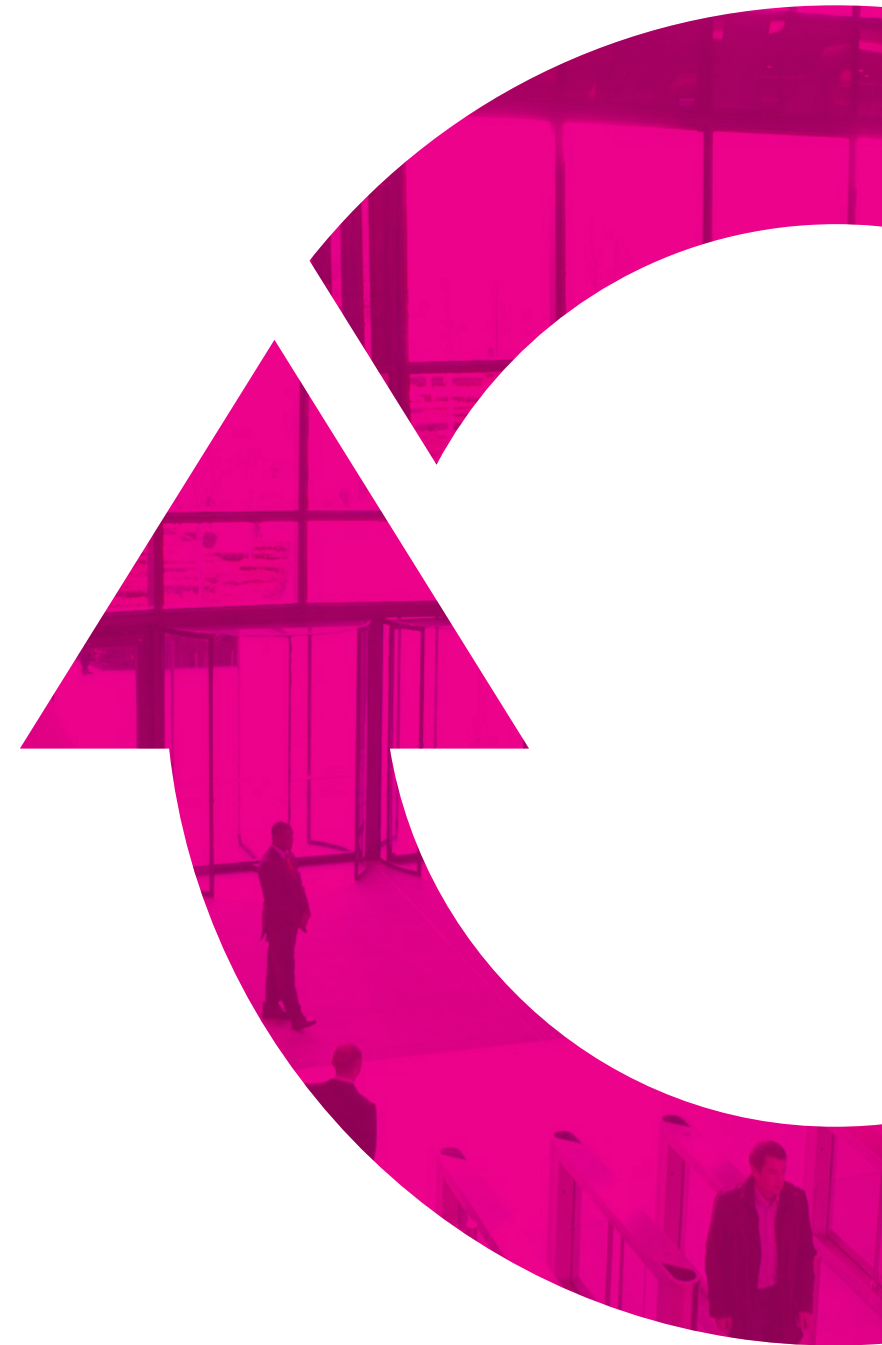
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# INTRODUCTION

This paper presents the findings of consultation with members of Business in the Community's (BITC's) Circular Economy Taskforce on opportunities for the UK to take a leading global role in resource productivity and to move towards a circular economy. It is intended to be useful to all stakeholders with an interest in collaborating to achieve a more circular economy – Government, business, academia and others.

The paper should be read alongside a macroeconomic paper, produced by WRAP, as a member of the Circular Economy Taskforce, describing the potential economic benefits of a circular economy to the UK.

The Taskforce, including participating companies, is described on page 24.



# FOREWORD

## LAYING THE FOUNDATIONS AND ACCELERATING THE PACE OF CHANGE

Andrew Bester Chair of the Circular Economy Taskforce



We all realise that we cannot continue with our current linear trajectory – taking the earth’s natural resources, turning them into products and then disposing of them once we’re done. It is simply not sustainable. There’s a world of opportunity to

re-think the way we go about business, re-defining products and services to design out waste and create a circular economy. The benefits go far beyond the environment – the potential to create economic growth and new local employment opportunities is very significant.

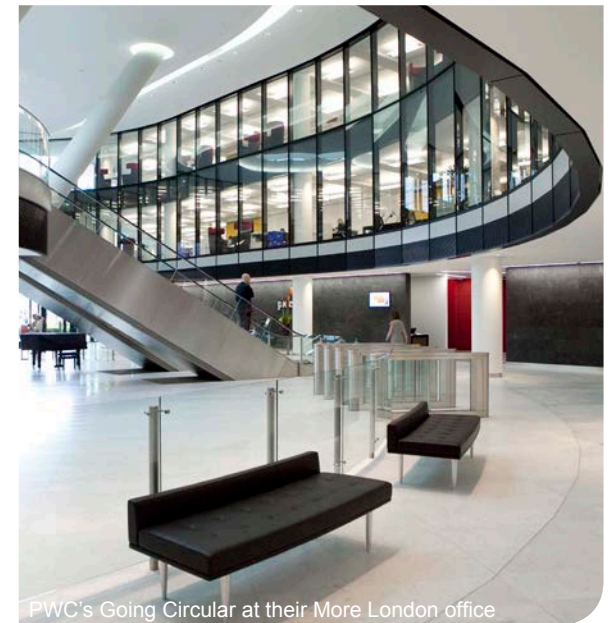
It is a privilege to chair Business in the Community’s Circular Economy Taskforce – a group of UK business leaders from different sectors, brought together by a shared passion to bring the circular economy to life in the UK through creativity, commitment and practical collaboration. The Taskforce believe that UK Plc is faced with a window of opportunity – to reap the benefits brought by greater resource productivity and to lead this globally: the alternative is that we get left behind.

In this paper, Taskforce members describe how their businesses have already begun making changes – through new technologies, value chain innovations and cultural change. They also set out their views on the opportunities for greater resource productivity and circularity, and what they see as the key ingredients for realising these – from collaboration within supply chains, with Government and others, to practical demonstration projects, bold policies and smart fiscal incentives, and targeted education and training.

The Taskforce welcomes the Government’s aspiration, set out in its Industrial Strategy, to create a partnership between government and industry and the inclusion of ‘clean growth’ as one of four Grand Challenges and one of the greatest industrial opportunities of our time. For the Taskforce, maximising the value we derive from natural resources at all stages of the life cycle and working towards zero avoidable waste is fundamental to this.

This paper is intended as a call to action. We invite Government, Taskforce members, the wider business community, educational and research institutions and other like-minded organisations to join us in unlocking these opportunities and leading the UK into a new era of growth through a circular economy.

**Andrew Bester**



PWC’s Going Circular at their More London office

**“We cannot continue with our current linear trajectory – taking the earth’s natural resources, turning them into products and then disposing of them once we’re done. It is simply not sustainable.”**

# FOREWORD

Amanda Mackenzie Chief Executive of Business in the Community



Business in the Community exists to create healthy communities with businesses at their heart. We define a responsible business as one which demonstrates purposeful leadership and responsible management across all areas of its business – and achieves long-term financial value as a result.

We are founded on the idea that responsible business is not an optional extra. It is fundamental to the success of any organisation. The circular economy is based on the same principle: if companies want to be a powerful force in the future, they need to protect themselves as well as the natural capital on which they depend. Of course, the circular economy goes far beyond protecting the environment: it has the potential to benefit communities across the UK by creating local jobs and skills, improving productivity and redistributing resources for social good.

We understand the power of compound impact and the truth of strength in numbers. Our Circular Economy Taskforce has already demonstrated the enormous appetite of business to work on this agenda through their leadership and the energy with which companies have participated in our Circular Office initiative.

Now, we must increase this momentum. For the circular economy to become a reality across the UK, we need more ambassadors to share its potential and drive change through practical, tangible action. We want businesses to work locally and globally to drive this change forward, making changes within their organisations as well as collaborating across supply chains and sectors. We also recognise the importance of working with Government to strengthen the regulatory and policy framework in which we all operate.

By launching this report, we are issuing a challenge to all sectors to embrace change and expect it in others. I believe that business is more than capable of rising to it and I look forward to what we can achieve.

**Amanda Mackenzie** OBE

**“If companies want to be a powerful force in the future, they need to protect themselves as well as the natural capital on which they depend. Of course, the circular economy goes far beyond protecting the environment: it has the potential to benefit communities across the UK.”**

# EXECUTIVE SUMMARY

## THE CIRCULAR ECONOMY AS A ROUTE TO OPPORTUNITY

The economy of the future must meet the needs of a growing population within the confines of diminishing critical resources, supply chains made vulnerable by climate change and political instability, tightening environmental regulation and the urgent need to reduce greenhouse gas emissions to net zero. Within this context, and as the UK exits the EU, delivering a resilient economy in the UK that creates new global leadership opportunities and works for everyone will require, among other things, a step change in innovation towards greater circularity and resource productivity. To achieve this requires strong collaboration between government and business – to ensure we have the policy framework, networks, skills and finance – and above all a commitment to try new ways of doing things.

The circular economy has caught the imagination of thought leaders across the world, and is taking shape as a viable, practical alternative to the current linear economic model. The economic case is compelling. As an alternative to our traditional 'linear' economy, a more 'circular' approach in the UK could increase resource productivity by 3% annually – giving a much-needed boost to productivity – generate £10bn GVA and 200,000 jobs by 2030, provide new market opportunities for SMEs as well as larger businesses, and improve the UK's balance of trade by 1 to 2%.

The circular economy also offers opportunities to protect natural capital, increase the value and reuse

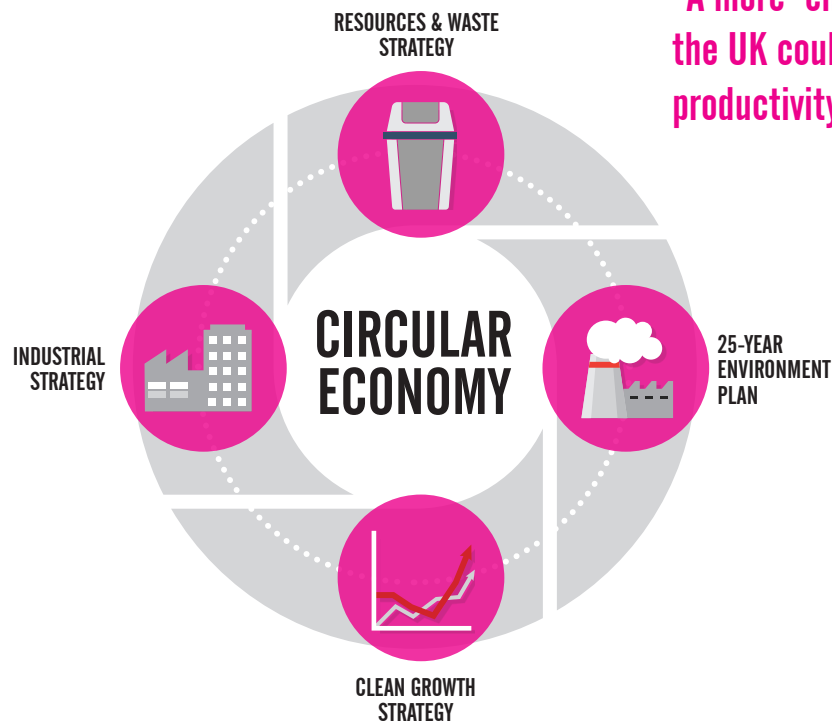
of secondary materials, and reduce green house gas emissions.

In the UK, many leading businesses – including Amey, Anglian Water, Arup, Interface, JLL, Jaguar Land Rover, Lloyds Bank, PwC, Recycling Lives, Ricoh, Rolls Royce, Unilever, Veolia, Viridor and Walgreen Boots Alliance to name a few – are embarking on a circular economy approach and are seeing significant economic benefits in terms of direct cost savings, new market opportunities, improved market positioning and the ability to grow in a challenging environment.

## ACCELERATING THE TRANSITION TO A CIRCULAR ECONOMY

BITC's Circular Economy Taskforce members believe that much can be done to accelerate this transition and ensure that the UK is in the driving seat of increasing productivity through new ways of working. The Taskforce has identified four areas where it would like to see collaboration and intervention.

**“A more ‘circular’ approach in the UK could increase resource productivity by 3% annually.”**



## 1. COLLABORATION TO REDESIGN PRODUCTS AND SERVICES AND BUILD CIRCULAR VALUE CHAINS

The Taskforce believe that collaboration should provide the backbone to achieving greater circularity: be this along supply chains, around specific opportunities, in cities and other places, in supporting SMEs and in garnering private and public sector leadership. They would like to work with Government and others to:

- Convene roundtables to identify how to unlock significant areas of opportunity. Priorities include:
  - Driving improvements in the use, design and reuse of plastics;
  - Revolutionising the use of waste across the UK; and
  - Eradicating waste crime and fostering responsible waste supply chains.
- Create demonstration projects in cities and sectors to show what is possible, the multiple benefits, how to do it and to scale up existing activities. Proposed and ongoing projects include: circular construction, circular offices/workplaces, waste utilisation and projects to tackle plastic challenges.

## 2. BUILDING STRONG NETWORKING AND INFORMATION SHARING COMMUNITIES

Ensuring that there are established forums to share ideas, experiences and opportunities is key to driving greater resource productivity and circularity within the business community.

The Taskforce has established a strong and growing network of companies committing to take action and share their experiences through the Circular Office initiative. It invites Government and other organisations to participate in the Circular Office initiative to build circular economy principles into decisions around procurement and facilities management.

The Taskforce also highlights the need for:

- Support for existing circular economy communities and opportunities for businesses and other stakeholders to come together.
- Support for SMEs with innovative circular solutions to find routes to market to enable them to scale up their activities.

**“The Taskforce believe that collaboration should provide the backbone to achieving greater circularity.”**

## 3. CREATING BOLD AND SMART POLICY INITIATIVES AND INNOVATING WITH FISCAL INCENTIVES

The Taskforce is keen to work with Government, business and other stakeholders to identify opportunities for policy and fiscal interventions to accelerate the transition. Priorities include:

- Sharing experience and expertise to inform the Resources and Waste Strategy.
- Unlocking opportunities to create markets for secondary materials through stimulating demand and making secondary/recycled materials more attractive than primary/virgin materials.
- Incentivising service-led approaches, and circular products and packaging.
- Increase the cost-effectiveness of repair over the manufacture of new products and services.
- The use of revenue raised through new fiscal interventions to support:
  - Research and development into resource productivity and circular solutions; and
  - SMEs and start-ups coming up with some of the best examples of circular solutions.
- Taskforce members are keen to support Government in evaluating deposit return schemes alongside setting ambitious waste recycling targets and exploring increased responsibility for manufacturers to use recycled content. This support might include sharing experiences and piloting different approaches.

#### 4. EDUCATING LEADERS AND INVESTING IN THE SKILLS NEEDED FOR A CIRCULAR ECONOMY

The Taskforce believes that moving towards a circular economy will, on balance, bring opportunities to create employment across the country. It recommends:

- Undertaking a mapping exercise to understand education and skills requirements for a circular economy within organisations relative to current education and training provision.
- Making a concerted effort to educate leaders in circular thinking, using established programmes including BITC's Seeing is Believing Programme and CISL's executive education programmes.
- Supporting the skills academies approach (within HMP academies and communities).
- Capitalising on the leadership of universities and technical colleges, and seeking to retain talent in the UK by ensuring opportunities for research and practical demonstration.
- Exploring the possibility of using part of the UK Government's additional investment in STEM skills to deliver high-level training with a focus on remanufacturing and automation skills, and the Apprenticeship Levy to train people with the right skills to develop a circular economy.



© Veolia



# SETTING THE SCENE

A circular economy can be defined as: *An alternative to a traditional 'linear' make-use-dispose economy, in which resources retain long-lived value within the economic system, by being designed for longer lifetimes, repair, post-use recovery, reuse and reprocessing.*



## THE CIRCULAR ECONOMY IS NOW FIRMLY ESTABLISHED AS A GROWTH ENABLER FOR UK COMPETITIVENESS

Mainstreaming the circular economy promises huge economic, social and environmental benefits to the UK: generating jobs; increasing productivity and GDP; encouraging inward investment; driving innovations at the same time as maximising value from resources; protecting natural capital; and minimising the environmental impacts of production, use and disposal. As identified in the accompanying *Smart growth: the economic case for the circular economy*

paper, it is estimated that a positive shift towards a more circular economy could:

- Generate almost £10bn of GVA.<sup>1</sup>
- Increase resource productivity by 3% annually, which could translate into 7% GDP growth by 2030, compared to the current model.<sup>2</sup>
- Improve the UK trade balance by 1% to 2% of GDP.<sup>3</sup>
- Generate over 200,000 jobs (gross) in the period to 2030 across regions in the UK where there are higher rates of unemployment.<sup>4</sup>

## BUSINESSES DRIVING THE CIRCULAR ECONOMY FORWARD

UK businesses are not waiting to be led. Companies are already taking considerable action to provide resilience, increase resource productivity, reduce their costs and environmental impacts and realise new business opportunities from thinking about resources in an 'extended life' concept.

Indeed, there are many world-leading examples of how UK businesses across sectors are integrating the principles of the circular economy into their business models; recognising the opportunities that resource productivity can bring to how they do business and for building new business. Examples provided by BITC's Circular Economy Taskforce and other BITC members are set out below, and incorporated throughout this paper.

### TASKFORCE MEMBER

PwC is applying the principles of the circular economy to all aspects of its business, starting with the elimination of landfill (which it achieved in 2012). As of 2017, it also recycles or reuses 91% of all the waste it generates, including IT, food, textile and furniture waste, as well as the more usual waste streams. This has saved over £25m for the firm since 2007 and IT reuse generates an additional annual revenue of more than £500k. PwC is now moving to circular procurement, seeking suppliers that can provide products or services deliberately designed to reduce their footprint and make a step change in environmental performance.<sup>5</sup>

Jaguar Land Rover identified a method of re-melting scrap aluminium to produce a Land Rover made of 50% recycled aluminium. This uses just 5% of the energy needed to smelt raw aluminium. Jaguar Land Rover's 'closed loop recycling policy' returns all surplus metal to the company's supply chain. The car is 428kg lighter meaning the engine could be downsized without any loss in performance, increasing fuel efficiency. 9.5 kg of recycled plastic is used inside and out, as is sustainably sourced wood and leather. Building on this success, JLR is expanding the use of recycled aluminium in its car bodies through a new £2 million REALITY project.<sup>6</sup>

**Rolls-Royce** has developed new processes to remove coatings, separate alloys and clean up used metals. Almost half a used aero engine can now be recycled to a standard where the quality of the recovered material is so high that it can be safely used again to make a new engine. The benefits to Rolls-Royce are multifaceted: safeguarding the supply of raw materials and keeping key materials (like titanium and nickel) at the high standard demanded by aerospace; reducing operating costs through reducing the cost of waste management; and helping customers achieve their sustainability objectives.<sup>7</sup>



Coffee cups ready for recycling at James Cropper Paper Mill

# TASKFORCE PERSPECTIVES:

Driving resource productivity and circularity in the UK economy

Circular Economy Taskforce members believe that much can be done to scale up and embed activities to drive resource productivity and circularity. The Taskforce has identified four areas where it would like to see intervention to ensure the UK is in the driving seat:

- 1 **COLLABORATION TO REDESIGN PRODUCTS AND SERVICES AND BUILD CIRCULAR VALUE CHAINS**
- 2 **BUILDING STRONG NETWORKING AND INFORMATION SHARING COMMUNITIES**
- 3 **CREATING BOLD AND SMART POLICY INITIATIVES AND INNOVATING WITH FISCAL INCENTIVES**
- 4 **EDUCATING LEADERS AND INVESTING IN THE SKILLS NEEDED FOR A CIRCULAR ECONOMY**



Orangebox Approved remanufactured G64 office chair



## COLLABORATION TO REDESIGN PRODUCTS AND SERVICES AND BUILD CIRCULAR VALUE CHAINS

### OPPORTUNITY

A concerted and collaborative effort is needed to support the move to a more circular value chain structure involving, for example, manufacturers taking responsibility for the recovery and reprocessing of materials, and business models based on providing products as a service rather than a commodity. Fundamental rethinking and restructuring is required – from materials flows and data analysis, to product design, manufacturing processes, financing models, contractual relationships and commercial decision-making processes.

These new approaches require additions to the value chain, particularly around the management of collection and redistribution. They also require new design and technical solutions – to design products for longevity and to extract maximum value from waste at the end of life. And while a circular approach may mean cheaper materials in the long run, it creates different capital requirements for businesses. In some areas, such as material recovery facilities, there will be an increased focus on automation, while in others, such as repair and remanufacturing, employment opportunities will be created.

**FUNDAMENTAL RETHINKING AND RESTRUCTURING IS REQUIRED – FROM MATERIALS FLOWS AND DATA ANALYSIS, TO PRODUCT DESIGN, MANUFACTURING PROCESSES, FINANCING MODELS, CONTRACTUAL RELATIONSHIPS AND COMMERCIAL DECISION-MAKING PROCESSES.**

Furthermore, better collection, sharing and analysis of data is needed across the value chain to identify opportunities for resource productivity and circularity. For example, better data is needed on the composition of products so that they can be repaired or disassembled and materials recovered. New technologies, artificial intelligence and the Internet of Things will help to create a dynamic value chain – able to provide savings and efficiencies, to reverse engineer moving parts of the value chain in real time, and to match the supply of resources to demand.

Because it is multifaceted and calls for a systemic approach, moving to a more circular economy requires new forms of practical collaboration – along value chains, across sectors focused on areas of common opportunity such as plastics and packaging, and between stakeholders including business, Government, NGOs and research institutions. Collaboration can help to unlock the circular economy in many ways – from encouraging and enabling leadership, to undertaking demonstration projects and tackling technical challenges.

For example, as members of the Ellen MacArthur Foundation's **New Plastics Economy** initiative, leading companies including Unilever and Coca Cola have committed to including recycled content in packaging. In the UK, this leadership could be built on to embed circularity more widely in the packaging sector.

In the UK, London, Glasgow and Peterborough are taking the lead in seeking to become pioneer circular cities. The public sector could similarly lead by example through promoting circular practices in

the supply chain by, for example, requesting and considering it in tenders and purchasing decisions. In Denmark, for example, where the public sector procures goods and services for around EUR 38 billion annually, a national initiative called the **Partnership for Green Public Procurement** is aiming to shift the country's public procurement practices to support a green transition of the market.<sup>8</sup>

Collaborating on circular demonstration projects – in specific places or in response to technical challenges – can provide good opportunities to demonstrate the possible, providing useful foundations to learn from and build on. Taskforce members have provided examples (below) of how they are piloting new approaches within the supply chain, providing practical demonstrations of the benefits of resource productivity and circularity. Their aspiration is that over time, these ways of working will become the norm, adopted by all actors in the value chain. For now, the Taskforce are keen to explore how they can build on existing work to replicate and scale up in projects and specific locations.

**NEW TECHNOLOGIES, ARTIFICIAL INTELLIGENCE AND THE INTERNET OF THINGS WILL HELP TO CREATE A DYNAMIC VALUE CHAIN – ABLE TO PROVIDE SAVINGS AND EFFICIENCIES, TO REVERSE ENGINEER MOVING PARTS OF THE VALUE CHAIN IN REAL TIME, AND TO MATCH THE SUPPLY OF RESOURCES TO DEMAND.**

## BUILDING ON GOOD PRACTICE

Taskforce companies have many excellent and varied examples of how they are introducing circular practices into their value chains. Some of these are described below.

### TASKFORCE MEMBER

Arup, during the London Design Festival, partnered with Frener & Reifer, BAM and the Built Environment Trust to design a temporary installation that explored how the circular economy could benefit the built environment industry, reflecting on the commercial, social and environmental opportunities of employing circular principles.

Arup questioned whether it was possible to design a building where, at the end of its life, all its components and materials can be re-used, re-manufactured or re-cycled. Asking this question tested the capability of the supply chain and profoundly altered the design and construction priorities.

Arup explored some of the challenges the industry faces when incorporating circular economy thinking, including the impact on design, procurement, construction, operation and deconstruction of the building. This prompted conversations between the designers, contractors and the wider supply chain around the ownership of assets and new business models. In building this prototype, the team learnt that there needs to be a significant step change in the design process, how components are assembled and the inherent value that we create over the life of the building.

### TASKFORCE MEMBER

Amey, through collaboration with its client, has delivered an innovative surfacing technique in Staffordshire involving the recycling of the 7,250 tonnes of tar-bound planings and production of Fly Ash Bound Granular Material (FABGM) to be used on its Redhill Business Park project. By using the FABGM, Amey has helped relieve Staffordshire County Council of a £1 million liability: the tar contained within the planings is classed as a hazardous waste and would cost around £140 per tonne to dispose. Using FABGM in-lieu of conventional construction is estimated to have saved a further £100,000.

The approach has delivered a closed loop stream of recycled materials and enabled Amey to exceed the minimum 15% recycled content target for the contract. A considerable percentage of local highway networks has a presence of coal tar meaning that this approach could be replicated elsewhere.



Arup's temporary circular installation

### TASKFORCE MEMBER

Unilever has committed to ensure all plastic packaging is fully reusable, recyclable or compostable by 2025. It recognises that achieving this ambition requires collaboration and partnerships – for example to invest in innovation and the right technical solutions and to join up existing infrastructure.

The importance of partnership is exemplified by product sachets, which while efficient and attractive, particularly to low-income customers, are difficult to recycle. To address this challenge, Unilever partnered with Fraunhofer Institute IVV in Germany to develop a technique for recycling sachets. The CreaSolv® Process technology was adapted from a method used to separate flame retardants from waste electrical and electronic equipment. The process recovers the plastic from the sachet, which is then used to create new sachets.

Unilever plans to make the technology open access so it can be used more broadly across the industry and is opening a pilot plant in Indonesia to test the commercial viability of the technology.<sup>9</sup>

TASKFORCE MEMBER

Viridor is collaborating with leading consumer brands to recycle millions of plastic bottles and create new packaging for everyday consumer products using recycled polymers of high enough quality to replace virgin resin, and to ensure manufacturers of a long-term supply of a competitive alternative. This is enabling innovative new longer-term contract partnerships, reflecting stronger demand in the UK.

Viridor and its client partners, working with polymer innovation specialists Nextek, have undertaken extensive trials and invested in new technology at Viridor's specialist polymers recycling facility in Skelmersdale. Quality control is crucial and new deodorising equipment was needed to overcome an often-overlooked issue: recycled plastics, whether they started their life as milk or shampoo packaging, retain a slight odour even after a thorough washing process.

As well as setting new standards for circular packaging, this initiative brings many environmental benefits: recycled plastic production consumes at least 50% less energy than the use of virgin materials, conserves natural resources, and decreases reliance on landfill or energy recovery and associated carbon emissions.

TASKFORCE MEMBER

Walgreen Boots Alliance has reorganised its internal logistics to reduce waste and increase materials recovery and recycling. Unnecessary packaging is removed at their warehouses so the stores do not have to deal with the additional waste. Reverse logistics are then used to send materials from stores to their cross-dock centres where they can be collected by recycling contractors. Half their waste is collected, sorted and recycled in this way.

TASKFORCE MEMBER

Anglian Water works at the intersection between the man-made and natural water cycle: taking water from the environment and treating it for public water supply needs, before collecting it as used water, treating it and returning it to the natural environment. This understanding helps them identify opportunities to maximise the re-use of scarce resources.

In their water recycling services, they turn 'used water' into valuable inputs into other processes and industries. Biosolids are re-used in a variety of ways, from returning nutrients to agricultural land from digested sludge to generating heat and power from their CHP plants. In 2016/17 99GWH was generated, which made up 14% of the electricity needs that year. The water itself can be re-used in industry or agriculture, reducing the amount that needs to be removed from the environment for those purposes – and what is not used in these ways is returned to the aquatic environment.

Anglian believes in collaborating to find solutions to common challenges with other sectors and customers. They have worked closely with the charity City to Sea, supporting campaigns such as "switch the stick" to design out the need for plastics in cotton buds, and Refill working with communities in the East of England to promote access to free water refill points to reduce single use plastic bottles.

TASKFORCE MEMBER

Veolia, the UK's leading resource management provider has transformed its business on a circular model designed to preserve scarce raw materials by giving them a second, third or fourth life.

By manufacturing green products and green energy and providing tailored solutions for business and local authorities it is helping preserve precious natural resources and boosting the UK economy.

Over 25% of Veolia's revenue is now circular as a result of its investment in a number of major sustainable initiatives including:

- Producing 10,000 tonnes of high quality food grade HDPE pellets annually from recycled milk bottles at its Dagenham Plastics Facility
- Converting 60,000 tonnes of used glass bottles and jars into energy saving insulation following investment in a £10m facility in partnership with Knauf Insulation at St Helens
- Creating over 100,000 tonnes of Pro-Grow certified sustainable organic fertilisers from biowaste every year

By developing innovative ways to integrate water, waste and energy services, Veolia is delivering value by saving resources and contributing to a low carbon future.

**ACHIEVING THIS AMBITION REQUIRES COLLABORATION AND PARTNERSHIPS – FOR EXAMPLE TO INVEST IN INNOVATION AND THE RIGHT TECHNICAL SOLUTIONS AND TO JOIN UP EXISTING INFRASTRUCTURE.**

TASKFORCE MEMBER

Ricoh established The Comet Circle™ in 1994 as a process model for resource recirculation throughout its range of hardware products, through the re-use and recycling of products, parts and components in order to embed sustainability into all aspects of manufacturing. In 2013 Ricoh took this onwards to the office space, creating the Ricoh New Ways of Working (NWoW), using sustainable office design, technology and change management to fully leverage the effectiveness of their workplaces to drive new behaviours and create flexible Work-styles fit for the future. Full enablement of technology, digitisation (de-papering) of information and workflows, in conjunction with a collaborative culture based on trust and empowerment, has speeded up decision making and action taking. NWoW enables mobile and flexible working, creating business resilience and agility, and significant reductions to travel impact. Since deploying NWoW, Ricoh has yielded many benefits including a 8% year-on-year reduction in business travel, reduced paper consumption and substantially reduced office footprint. Ricoh now offers NWoW – marketed externally as Workplace Services – on a consultancy basis to deliver all aspects and benefits to its customers.<sup>10</sup>

TASKFORCE MEMBER

Since 1994, Interface has been on a journey, known as *Mission Zero*, to eliminate any negative impact the business had on the environment by 2020. Transforming from a petroleum-intensive manufacturer into the world’s first environmentally sustainable, and ultimately restorative, company. Rejecting the notion of a linear, *take-make-waste* economy, Interface creates flooring products from recycled materials and offers to close the loop by taking its customers’ carpets back at end of life. Across its portfolio, 58 percent of Interface’s raw material usage is now sourced from recycled or bio-based sources.

Through its *ReEntry* programme, Interface’s backing materials either gain new life as part of our recycled carpet backing system, are reused creating social impact through reuse operators and social enterprises, or are sent to waste-to-energy facilities. In 2016, globally, Interface were able to prevent 4,795 metric tons of carpet from going into landfill. That represents over 1 million square meters, equivalent to carpeting over 250 football pitches.

In 2016, Interface launched a new mission, *Climate Take Back*, a commitment to run its business in a way that will create a climate fit for life. Last year, Interface unveiled a prototype product, *Proof Positive*, the world’s first carbon negative carpet tile that in its manufacture captures CO<sub>2</sub>, and hence the atmosphere has less carbon dioxide than if it had not been manufactured in the first place.

## ACCELERATING THE TRANSITION

The Taskforce believes that collaboration should provide the backbone to achieving greater circularity: this along supply chains, around specific opportunities, in cities and other places, in supporting SMEs, and in garnering private and public sector leadership. They would like to work with Government and others to:

- Convene roundtables to identify how to unlock significant areas of opportunity. Priorities include:
  - Driving improvements in the use, design and reuse of plastics;
  - Revolutionising the use of waste across the UK; and
  - Eradicating waste crime and fostering responsible waste supply chains.
- Create demonstration projects in cities and sectors to show what is possible, the multiple benefits, how to do it and to scale up existing activities. Proposed and ongoing projects include: circular construction, circular offices/workplaces, waste utilisation and projects to tackle plastic challenges.



Anglian Water’s newest water treatment works in Lincolnshire.

## 2

# BUILDING STRONG NETWORKING AND INFORMATION SHARING COMMUNITIES

## OPPORTUNITY

Building strong communities of organisations is key to unlocking the circular economy. Businesses need to come together with other stakeholders to share ideas, learning and experiences, to create solutions to shared challenges, and to learn and try new things at a very practical level.

In the UK, there are some excellent forums, taskforces and websites bringing people with an interest in the circular economy together. Business in the Community's Circular Economy Taskforce, for example, aims to bring the circular economy to life through thought leadership, awareness raising and identifying opportunities for practical collaborative action.

At a global level, the **Ellen MacArthur Foundation's CE 100 programme** brings together corporates, governments and cities, academic institutions, emerging innovators and affiliates in a multi-stakeholder platform to learn, build capacity, network, and collaborate.<sup>11</sup>

Online communities are also being developed to share information, signpost to circular solutions and join professionals together. The **Circular Economy Club**, for example, is an international network of over 2,600 circular economy professionals and organisations which connects professionals, provides them with open tools and resources and organises events to spur collaboration. Businesses are also creating their own online forums for suppliers and other stakeholders, to share advice and encourage sustainable and circular

practices along the supply chain, such as **Tesco's Supplier Network**.<sup>12</sup>

Several digital communities to create secondary materials markets exist in the UK – creating value from and reusing 'waste' resources. More informally, businesses are using sites such as eBay and Freecycle to share surplus office supplies. Location-specific websites, such as **Share Peterborough** are also being created to enable businesses to buy, sell and share waste resources and surplus office space. These communities represent the beginnings of what will overtime become a well-established secondary materials market within a circular economy.



Circular Economy Taskforce visit to James Cropper Paper Mill

**BUSINESSES NEED TO COME TOGETHER WITH OTHER STAKEHOLDERS TO SHARE IDEAS, LEARNING AND EXPERIENCES.**

## BUILDING ON GOOD PRACTICE

The following two case studies provide examples of how businesses and other stakeholders have come together in communities to respond to specific areas of opportunity.

### BITC's Circular Office initiative

BITC's Circular Economy Taskforce has launched the Circular Office initiative as a means of bringing businesses and other organisations together to learn about and implement circular opportunities. Almost all organisations have an office and they are home to a vast range of natural resources, providing the ingredients for the fabric of the building, and for its contents, from furniture to IT equipment, food, uniforms, lighting and carpets.

The Circular Office initiative is about changing the way we design, use and operate in the places we work to eliminate waste and create more efficient, resilient spaces which contribute to the long-term sustainability of businesses, the environment and the wider economy. The business case is clear – using resources efficiently and avoiding waste can save money, enhance productivity, unleash new business opportunities, create broader social value and increase employee morale.

Business can sign up to the Circular Office initiative by simply committing to take at least one step towards greater circularity in their workplace and share their learning.<sup>13</sup>



### Paper Cup Recovery and Recycling Group (PCRRG)

The PCRRG brings together various parts of the paper cup supply chain to increase paper cup recycling and divert used cups from landfill.

The group aims to bring together different parts of the supply chain, conduct research, engage with stakeholders, improve the sustainability of the paper cup supply chain, develop consistent messaging, and find solutions to collect and recycle paper cups through existing recycling collection.

The PCRRG brings together 35 companies. One member, Costa Coffee has launched paper cup recycling in all 2,000 of their stores. A sign of the collaboration that exists is the fact they accept cups from any brand at these recycling points.<sup>14</sup>



Viridor Materials Recycling Facility separating co-mingled recycling

TASKFORCE MEMBER

With high resource use and waste generation, the real estate sector is ideally placed to benefit from the move from a linear to a circular economy.

JLL recognizes the opportunity to reduce construction and waste costs, increase resilience, improve building performance and drive innovation.

In line with their commitment to support the transition to a circular economy, JLL are working with leading clients such as The Crown Estate to implement initiatives to achieve their aspiration to be waste free by 2030. In a recent refurbishment of an office space in Regent Street, which they manage for The Crown Estate, they used remanufactured and refurbished furniture and equipment for the entire office. This saved money and resources - saving nearly 8 tonnes CO<sub>2</sub>e, while still using high quality furniture including kitchen worktops made from 100% recycled glass. In addition, working with The Crown Estate, JLL will soon be launching a range of products manufactured from Regent Street waste, including photo-copier paper, notepads, pens and pencils.

## ACCELERATING THE TRANSITION

Ensuring that there are established forums to share ideas, experiences and opportunities is key to driving greater resource productivity and circularity within the business community.

The Taskforce has established a strong and growing network of companies committing to take action and share their experiences through the Circular Office initiative. It invites Government and other organisations to participate in the Circular Office initiative to build circular economy principles into decisions around procurement and facilities management.

The Taskforce also highlights the need for:

- Support for existing circular economy communities and opportunities for businesses and other stakeholders to come together.
- Support for SMEs with innovative circular solutions to find routes to market to enable them to scale up their activities.



## CREATING BOLD AND SMART POLICY INITIATIVES AND INNOVATING WITH FISCAL INCENTIVES

### OPPORTUNITY

The EU has a clear view on the importance of moving towards a circular economy, expressed in the *Circular Economy Package*. With Brexit, negotiations the UK has a decision to make to either lead or lag. This consultation has heard Taskforce members' fear that is a real threat of circular economy intellectual capital – from traditionally strong innovative British sectors – moving to Europe and North America, where there is robust and established support for this approach.

The UK Government is setting out strong signals of support for a circular economy in key strategies including the Industrial Strategy, Clean Growth Strategy and 25-Year Environmental Plan and forthcoming Resources and Waste Strategy. The Taskforce welcomes this in providing clear market signals and driving business confidence to invest in resource productivity and circular opportunities. The Industrial Strategy aims to promote long-term partnerships with industry, to drive business confidence to invest and make the UK more competitive. UK Government has the appetite to develop this idea further, indicating that it plans to

explore opportunities to reduce raw material demand and waste in our energy and resource systems, and to promote well-functioning markets for secondary materials, and new disruptive business models that challenge inefficient practice.

Historically, the UK has been pioneering in smarter environmental regulation, such as landfill taxation, support for industrial symbiosis and legislation for extended producer responsibility. Taskforce members believe that the UK Government has a crucial role to play again now in introducing the right mix of policies to unlock opportunities for resource productivity, creating investment certainty and encouraging innovation. This is particularly pertinent with the Circular Economy Package coming through the European Parliament, the question as to what the UK will take from it post Brexit, and how this will affect trade with the EU.

The Taskforce is keen to work with Government and other stakeholders to harness this support and create a bold and supportive policy framework with smart regulatory and fiscal signals to secure the UK's leadership in this space.

**TASKFORCE MEMBERS BELIEVE THAT THE UK GOVERNMENT HAS A CRUCIAL ROLE TO PLAY AGAIN NOW IN INTRODUCING THE RIGHT MIX OF POLICIES TO UNLOCK OPPORTUNITIES FOR RESOURCE PRODUCTIVITY, CREATING INVESTMENT CERTAINTY AND ENCOURAGING INNOVATION.**

### BUILDING ON GOOD PRACTICE

There are lessons to be learned from other countries – of Governments incorporating circular economy principles into key strategies, and creating legislation, policy and fiscal incentives to stimulate innovation in design, reuse and recycling.

Some European countries have built productivity enhancement into their industrial strategies, including Germany's goal to double resource productivity by 2020 from a 1994 baseline.<sup>15</sup> France is also well above the EU average on resource productivity,<sup>16</sup> supported by strong policy initiatives. In the Netherlands, there is a government-wide programme aimed at developing a circular economy by 2020 that focuses on legislation and regulations that have a stimulating effect, smart market incentives, funding, knowledge and innovation, and international cooperation.<sup>17</sup>

The Swedish Government has passed laws requiring retailers selling electronic goods to accept the same quantity for reuse or recycling and packaging manufacturers to recycle more of their material.<sup>18</sup>

Outside the EU, Japan has also moved towards a highly efficient circular economy thanks primarily to the pioneering Law for the Promotion of Efficient Utilization of Resources, passed in 2000. The law, which treats materials as circular goods, covers products' entire lifespans. Manufacturers are legally required to also run disassembly plants, with material recovery legally mandated as well. This incentivises manufacturers to make their products easier to disassemble and

recycle. Today 98% of metals and 77% of plastics are recovered.<sup>19</sup>

China's ambition is that over 75% of national and over 50% of provincial industrial parks should have complete 'circular' strategies by 2020.<sup>20</sup>

Within the UK, the Scottish Government developed a strategy in 2016 to move the country towards a more circular economy, aligning its economic and environmental objectives. A key element of this strategy is to develop a more comprehensive approach to producer responsibility by setting up a single framework for all product types that drives choices for reuse, repair and remanufacture, while more fully exposing and addressing the costs of recycling and disposal.<sup>21</sup>

The Welsh Government has created a Circular Economy Capital Investment Fund to help SMEs make the transformation towards a 'Circular Economy' and to help Wales towards the milestones of 70% recycling by 2025 and 100% recycling by 2050, as set out in the Welsh Government's waste strategy Towards Zero Waste.<sup>22</sup>

Accelerator research grants supporting **CCm** have secured an innovative, competitive, domestic-based business driving resource productivity. CCm's process captures the carbon dioxide outputs of waste management plants and uses it to produce other materials, in particular high-grade compound fertilisers.<sup>23</sup>

There are examples across Europe where this understanding is being driven into the tax regime. The Swedish Government, for example, has proposed reducing the value-added tax on repairs from 25% to 12%, allowing businesses to claim back VAT from repairing certain products.<sup>24</sup> The Scottish Government is planning to introduce a deposit return scheme for bottles and cans, like schemes in Sweden, Denmark and Norway.<sup>25</sup>



Segregation of waste is key to recovering and reusing materials.

## ACCELERATING THE TRANSITION

The Taskforce is keen to work with Government, business and other stakeholders to identify opportunities for policy and fiscal interventions to accelerate the transition. Priorities include:

- Sharing experience and expertise to inform the Resources and Waste Strategy.
- Unlocking opportunities to create markets for secondary materials through stimulating demand and making secondary/recycled materials more attractive than primary/virgin materials.
- Incentivising service-led approaches, and circular products and packaging.
- Increase the cost-effectiveness of repair over the manufacture of new products and services.
- The use of revenue raised through new fiscal interventions to support:
  - Research and development into resource productivity and circular solutions; and
  - SMEs and start-ups coming up with some of the best examples of circular solutions.
- Taskforce members are keen to support Government in evaluating deposit return schemes alongside setting ambitious waste recycling targets and exploring increased responsibility for manufacturers to use recycled content. This support might include sharing experiences and piloting different approaches.



## EDUCATING LEADERS AND INVESTING IN THE SKILLS NEEDED FOR A CIRCULAR ECONOMY

### OPPORTUNITY

To transition to a circular economy, individuals at every level in all types of businesses need to be equipped with appropriate understanding and skills. This needs to be rooted at the most senior level – business (and other) leaders need to: understand the opportunities brought by circular thinking to their organisations; connect this with commercial benefits; and embed this thinking throughout the business along with the skills to apply it.

In addition to equipping their workforces to realise current opportunities, leaders need to be forward thinking in skilling their workforces for the future – recognising that many new skills will be required and many existing roles will change significantly or indeed may become redundant in a circular economy.

The Taskforce identifies that moving to a circular economy will create new jobs, but many of these will rely on skill sets that are currently in low supply or missing within the UK. The jobs and skills needed are identified at all levels – from unskilled disassembly and semi-skilled activities in resource management; to skilled roles in remanufacturing; and highly skilled design and robotics/automation related activities. STEM skills will be particularly important. Investment in reskilling is also important to allow people to move from one industry to another as opportunities develop.

**IDENTIFYING AND INVESTING IN THE NECESSARY SKILLS WILL HELP UK BUSINESSES BUILD A FLEXIBLE WORKFORCE, ABLE TO RESPOND TO THE NEEDS OF AN EMERGING CIRCULAR ECONOMY, IN ANY GIVEN SECTOR.**

Identifying and investing in the necessary skills will help UK businesses build a flexible workforce, able to respond to the needs of an emerging circular economy in any given sector. Businesses are already investing in training workforces to help automate processes to increase circularity. However, maintaining the human capital dimension in skills, rather than just helping automate, is considered important in creating new jobs, increasing employees' loyalty and motivation, and bringing wider social capital benefits. Maintenance and repair, for example, are local activities offering opportunities for job and skill creation across the country.

### BUILDING ON GOOD PRACTICE

Several established programmes aim to inspire and educate leaders. The Prince of Wales's Charities, for example, run well respected executive programmes that provide ideal conduits to embed circular thinking at a senior level:

- **Business in the Community's Seeing is Believing Programme** uses the power of experiential learning to inspire and challenge senior leaders to think strategically about the implications for their own business and the practical actions that can be taken in response, leading to meaningful and sustained impact for both business and communities.<sup>26</sup>
- The **Cambridge Institute for Sustainability Leadership's executive education programmes** help senior leaders develop strategic responses to corporate sustainability challenges including the circular economy.<sup>27</sup>

Taskforce members are involved in supporting STEM skills and technical qualifications through a variety of institutions. Some of these include:

- The **Manufacturing Technology Centre** in Coventry, supported by Lloyds Bank, is a state-of-the-art training centre, aiming to create a new generation of engineers and narrow the UK's manufacturing skills-gap to accelerate the UK's industrial growth, to deliver innovation, create and embed future skills and maximise synergies within supply chains.<sup>28</sup>
- The **Greater Peterborough Technical College** (GPUTC), supported by Anglian Water, offers technical qualifications in engineering and the built environment as part of its core curriculum. Students benefit from learning in its state-of-the-art building, using industry leading-facilities and equipment. 'Learning by doing' is key to GPUTC's method of teaching, ensuring that students are equipped with the necessary skills to progress onto higher education, apprenticeships, further training or directly into employment.<sup>29</sup>

Some universities are also leading the way in developing pioneering and innovative circular economy-orientated research and teaching programmes. The Ellen MacArthur Foundation, for example, is working with leading Pioneer Universities around the world, four of which are UK based – Bradford, Cranfield, Exeter and University College London.<sup>30</sup> Recently, Cranfield University launched the world's first MSc in the Circular Economy, fusing expertise in engineering, logistics and environmental sciences with world-leading programmes in business and finance.

TASKFORCE MEMBER

Recycling Lives HMP Academies programme involves work in nine prisons and enables participants to ‘earn and learn’, undertaking useful and well-paid work, primarily in the recycling of electrical equipment, whilst also learning valuable life and work skills ahead of release. Recycling Lives current reoffending rates are only 6% compared to the national average of 67%, with an estimated national saving of £100,000 for every offender rehabilitated.<sup>31</sup>

## ACCELERATING THE TRANSITION

The Taskforce believes that moving towards a circular economy will, on balance, bring opportunities to create employment across the country. It recommends:

- Undertaking a mapping exercise to understand education and skills requirements for a circular economy within organisations relative to current education and training provision.
- Making a concerted effort to educate leaders in circular thinking, using established programmes including BITC’s Seeing is Believing Programme and CISL’s executive education programmes.
- Supporting the skills academies approach (within HMP academies and communities).



Recycling Lives’ HMP Academy

- Capitalising on the leadership of universities and technical colleges, and seeking to retain talent in the UK by ensuring opportunities for research and practical demonstration.
- Exploring the possibility of using part of the UK Government’s additional investment in STEM skills to deliver high-level training with a focus on remanufacturing and automation skills, and the Apprenticeship Levy to train people with the right skills to develop a circular economy.

**THE TASKFORCE RECOMMENDS UNDERTAKING A MAPPING EXERCISE TO UNDERSTAND SKILLS REQUIREMENTS FOR A CIRCULAR ECONOMY RELATIVE TO CURRENT EDUCATION AND TRAINING PROVISION.**

# CONCLUSION

The Circular Economy Taskforce invites others to join them in unlocking the opportunities and leading the UK into a new era of growth through a circular economy

We could continue to fill this paper with examples of the innovation being driven by UK businesses, large and small. But we hope we have given a good flavour of the scale and breadth of activity already underway. If there are two very clear messages that we hope readers will take away, these are that:

- 1 We have an exciting window of opportunity to accelerate the transition to a circular economy in the UK.**
- 2 The Taskforce looks forward to working with Government, business, academia and other stakeholders to bring the circular economy to life – through coming together to lay strong foundations and collaborating to accelerate the pace of change.**



## ENDNOTES

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<sup>29</sup> <http://www.utcolleges.org/utcs/greater-peterborough-utc/>

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<sup>31</sup> Recycling Lives is a recycling and waste management company with a social welfare charity that provides vulnerable and marginalised people with skills and training in recycling and remanufacturing activities <http://www.recyclinglives.com/about/>

## CONTRIBUTIONS

We would like to thank the Circular Economy Taskforce members, our partner organisations – Accounting for Sustainability and the Cambridge Institute for Sustainability Leadership – and other BITC members – Jaguar Land Rover, Nestlé, Rolls-Royce – for contributing their views and Anthesis for their support in writing this report.

## ABOUT THE CIRCULAR ECONOMY TASKFORCE

Business in the Community's Circular Economy Taskforce brings together a group of CEOs and other senior executives committed to delivering a high impact programme to bring the circular economy to life. The Taskforce is Chaired by Andrew Bester. Its members include: Amey, Anglian Water, Anthesis, Arup, Interface, JLL, Lloyds Banking Group, PwC, Recycling Lives, Ricoh, Unilever, Veolia, Viridor, Walgreens Boots Alliance and WRAP.

The Taskforce's vision is to deliver a high impact programme to bring the circular economy to life and for the UK to be at the heart of driving a new model of 'smart' economic growth that unleashes the opportunities the circular economy and resource productivity bring to:

- Drive innovation;
- Improve productivity and global competitiveness;
- Create new skills and employment opportunities; and
- Achieve broader societal and environmental benefits including contributing to the UN SDG Goals of Responsible Consumption and Production, Decent Work and Economic Growth, Sustainable Cities and Communities and Climate Action.

The Taskforce is drawing on the strength of the BITC network to implement a three-year action plan focused on leadership, collaboration and practical action. The action plan is centred around three core areas of activity:

- Raising awareness and inspiring action;
- Building a programme of practical collaborative action and innovation; and
- Promoting the policy frameworks and support needed to unleash opportunities.







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