



USING STANDARDS,  
AUDITING AND CERTIFICATION  
TO TRANSITION TO A CIRCULAR  
ECONOMY BUSINESS MODEL



BUREAU  
VERITAS

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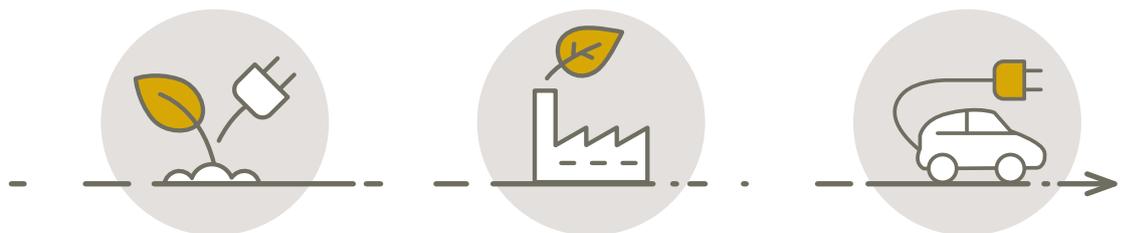
Bureau Veritas: your partner in implementing a circular economy business model

# A NEW APPROACH TO SUSTAINABLE BUSINESS

**Sustainability is at a turning point, as governments and businesses seek ways to combat climate change and the severity of plastic waste in food chains and oceans. For many years, businesses have focused on managing environmental impacts; today, they are looking to meet future regulatory requirements and customer expectations.**

To accomplish this, many organizations are moving towards a circular economy - a regenerative business model in which resources are continuously reused and recycled.

This white paper explains what the circular economy is and how using standards, auditing and certification offers a pragmatic way for companies to begin their journey to responsible sourcing and greater waste reduction. It shows how businesses can implement increasingly sustainable practices on a step-by-step basis, helping them transition to a circular economy model at the pace that is right for them.



# A NEW APPROACH TO SUSTAINABLE BUSINESS

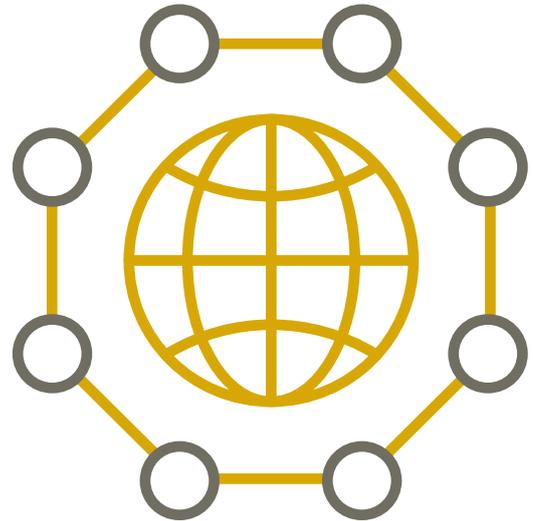
Modern business leaders and sustainability managers may feel overwhelmed when defining a sustainability strategy for their business. In response to growing evidence of climate change, pollution and poor working conditions in global supply chains, many managers are personally committed to enacting change, future-proofing their business and preserving their company reputation.

To succeed in this, managers require sustainability strategies that are workable, tangible and easy to communicate. For decades, sustainability strategies have focused on managing and reducing existing environmental and social impacts, while communicating costs and reputational benefits to relevant stakeholders.

Today, however, some businesses are going much further. The most ambitious sustainability strategies are based on a move towards the circular economy – a renewable energy-powered model in which resources are preserved, sub-products are continually reused and wastes recycled to retain their highest value state.

The circular economy is disruptive: it requires a rethinking of existing linear business models which generate waste at each stage of production and consumption, and demands new skills for product and process design. The disruptive nature of the circular economy business model can make it challenging to adopt, particularly for large or listed companies in traditional industries.

## CIRCULAR+, A PRAGMATIC WAY TO TRANSITION TO A CIRCULAR ECONOMY BUSINESS MODEL



This is why Bureau Veritas Certification has launched Circular+, a new approach to corporate sustainability, built on a comprehensive suite of services. Circular+ supports any organization's transition to a more circular business model, at the pace that is right for them.

Circular+ recognizes that a successful circular economy business model is built on a series of interlocking cogs. It provides organizations with a way to rework their processes step-by-step, gradually cementing their commitment to the circular economy. A range of verification, certification and auditing products and services enable businesses to tackle both individual processes and entire business models at a customized speed, revealing supply chain issues and improving transparency.

Developed by Bureau Veritas, a global leader in environmental, safety, energy and social management systems services, Circular+ enables you to develop a powerful approach that works for your business, and achieves buy-in from your employees and clients. Process audits and management systems certification provide you with a way to identify issues, report on the effectiveness of controls and track the achievement of objectives over time. This will help you deliver the results and momentum to propel your organization towards a circular economy business model.



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# WHAT IS THE CIRCULAR ECONOMY?

By 2030, the planet will be home to nearly 9 billion people<sup>1</sup>. Resource scarcity, urbanization, pollution, rising energy costs and water insecurity are among the many challenges that will arise from this rapid population growth. In the face of these challenges, our “take-make-waste” industrial model has become unviable, and a new paradigm is emerging: the circular economy.

## A REGENERATIVE APPROACH TO ECONOMIC GROWTH

The circular economy is an economic framework that focuses on carefully managing resources so nothing is wasted. In other words, products and materials are kept in use—reused, remanufactured and recycled continuously—for as long as possible to achieve maximum value. This restorative and regenerative approach aims to create a closed-loop supply chain that “designs out” waste. Because the circular economy maximizes economic, natural and social capital, it is considered a valuable tool for empowering businesses, helping them successfully tackle environmental priorities, drive performance and stimulate economic growth<sup>2</sup>.

The circular economy distinguishes between two cycles of supply chain and production:

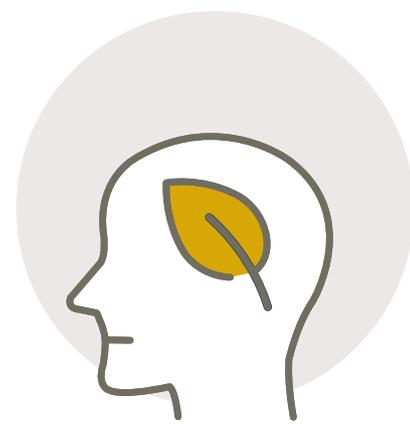
- **Biological:** Food and organic materials are fed back into the system (e.g., composting, anaerobic digestion). This helps regenerate living systems (e.g., soil) that provide renewable resources.
- **Industrial:** Products and materials are recovered and restored through reuse, repair, remanufacture or recycling.

**A circular model encompasses zero energy waste and carbon emissions: it is supported by the use of renewable energies.**

<sup>1</sup> United Nations Department of Economic Affairs, June 2017  
<sup>2</sup> Ellen MacArthur Foundation



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## TRANSITIONING TO A CIRCULAR ECONOMY

Experts agree that reducing the negative impacts of the “take-make-waste” industrial model is not enough to achieve a circular economy. Transitioning necessitates a systemic shift in the way new products are designed, how their input materials are sourced, how they are manufactured and how sub-products are reused and wastes are recycled. Controlling finite resources, recycling components, redesigning products and optimizing resource yield are among the many ways to begin this systemic shift.

Transitioning to the circular economy model demands understanding and control of all materials and processes used in production. For example, to produce and sell a T-shirt in a circular economy business model requires responsible sourcing of the cotton and chemicals used, and the working conditions in the factory used to manufacture it; control of the energy used in manufacturing, transportation and distribution; and a process for collecting, breaking down and recycling the T-shirt post-use. In order to be credible, each of these processes must be defined, implemented, audited and verified.



# WHAT IS THE CIRCULAR ECONOMY?



## CIRCULAR IN THE MAINSTREAM

In recent years, the circular economy concept has gained ground. Google searches for the term “circular economy” have quadrupled in the past five years<sup>3</sup>. Non-profit organizations and legislative bodies are providing leadership on the topic, introducing the conversation into the business mainstream. An increasing number of national standards (e.g., BS 8001, XP X30-901) are being added to existing international standards for life cycle assessment (ISO 14040 family, ISO 14067) and material flow cost accounting standards (ISO 14051 and 2). This helps organizations to identify sustainability weaknesses in their value chains and guides them towards more circular business models.

With global initiatives like the Paris Climate Agreement, and concrete goals being set by organizations such as the UNFCCC, reducing emissions and protecting natural resources are moving up the legislative agenda, particularly in the European Union. Their Circular Economy Package includes new measures to make all plastic packaging recyclable by 2030, phase out single-use plastics and reduce marine litter. New waste measures have been adopted to facilitate innovative production, business and consumption models that reduce the presence of hazardous substances in materials and products, encourage the increase of product lifespan, and promote their reuse.

Companies around the world have started incorporating this outlook into their day-to-day operations. Major companies like Procter & Gamble<sup>4</sup> and H&M<sup>5</sup>, with its Conscious Exclusive collection using recycled fabrics, are already adopting a circular economy business model for several products.

The future of business is poised to be circular, and there’s never been a better time to accelerate the transition.

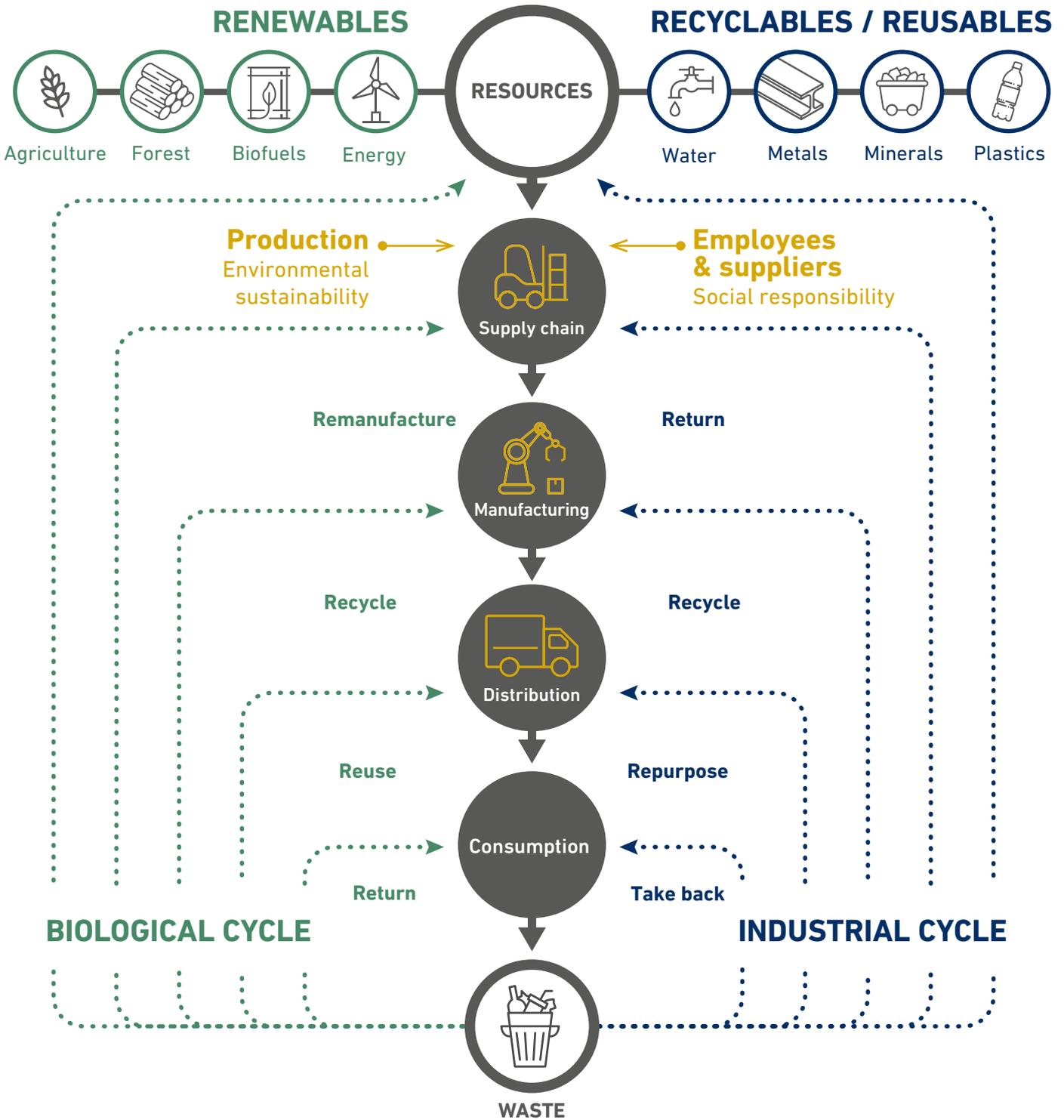
<sup>3</sup> Source : Google Trends

<sup>4</sup> Source : <https://us.pg.com/environmental-sustainability/>

<sup>5</sup> Source : <http://about.hm.com/en/media/news/general-news-2018/HM-debuts-Conscious-Exclusive-collection-for-Autumn-Winter-introducing-recycled-cashmere-and-velvet-made-from-recycled-polyester.html>

# CIRCULAR ECONOMY DIAGRAM

Accounting for both biological and industrial cycles, the circular economy business model provides a zero-waste, zero-emissions approach to product creation, distribution, use, repurposing and recycling.



# AUTOMOTIVE: PUTTING SUSTAINABILITY INTO A HIGHER GEAR

The automotive industry is transforming at an unprecedented pace, driven mainly by the practical realities of large scale electric vehicle production. But the sourcing of many materials used in these vehicles poses significant environmental and social risks. The circular economy business model is offering the automotive industry new opportunities to mitigate and overcome these risks.

## THE DIRTY SIDE OF CLEAN VEHICLES

Today, the global electric-vehicle (EV) market is growing rapidly, with +1 million EV units sold in 2017<sup>6</sup>. Unfortunately, many raw materials used in electric cars have a negative impact on the environment and society. In addition to iron and steel production, which is a major source of water and air pollution, the mining of cobalt—a raw material used in lithium-ion batteries—has been linked to child labor and corruption. The automotive industry's sourcing approach is thus increasingly at odds with consumer demand for greater transparency and social responsibility.

It will also increasingly hit regulatory barriers. Already, legislation such as the EU's End-Of-Life Vehicles Directive demands that 80% of a car's materials and components be recycled at the end of its life. Efforts to reuse and recycle will further increase as governments aim to transition to a low-carbon, resource-efficient economy.

## RETHINKING RESPONSIBLE SOURCING

To improve environmental and social management across their supply chains, OEMs and suppliers are rethinking their sourcing approach. This includes increasing the proportion of input materials from reused and recycled sources, and finding new applications for output materials (e.g., reusing fabric from old car seats to create home insulation, using end-of-life EV lithium-ion batteries for off-grid energy storage and supply to villages in Africa).

Responsible sourcing can support compliance, help manufacturers meet consumer demand for greener, more sustainable technology, and become the first step towards implementing a circular economy business model.

<sup>6</sup> McKinsey & Company, "The global electric-vehicle market is amped up and on the rise," May 2018



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# TOWARDS A RESPONSIBLE SOURCING MODEL

The raw materials used in vehicles pose major social and environmental risks.



### ALUMINUM

USE: RADIATORS, CYLINDER HEADS, WHEELS, BODY PANELS

Progressing and smelting to produce aluminum uses large amounts of energy and water, and results in substantial carbon emissions.

### IRON & STEEL

USE: BODY STRUCTURE, EXHAUST SILENCERS, CATALYTIC CONVERTERS

Iron and steel production is a major source of water and air pollution, accounting for around 5% of human CO2 emissions.

### COPPER

USE: SYSTEMS WITH ELECTRONIC COMPONENTS (E.G. BRAKES, GEARBOXES, ECUs)

Environmental impacts of copper mining include deforestation, land degradation, water pollution and local ecosystem destruction.

### COBALT

USE: BATTERIES

Cobalt supply chains are notoriously linked to human rights abuses including child labor and forced labor.

### ZINC

USE: ELECTRO-GALVANIZING, CORROSION PROTECTION, TIRES

Zinc production is energy-intensive, resulting in carbon emissions and heavy metal residue that contaminates the food chain.

### MICA

USE: CAR PAINTS, PLASTIC COMPOSITES, ELECTRONIC CAPACITORS

Nearly 25% of the world's mica is sourced from mining operations in India where over 22,000 children are forced to work.

### LEATHER

USE: CAR SEATS AND INTERIORS

Raising animals for leather is highly resource-intensive and generates significant greenhouse gas emissions.

### NATURAL RUBBER

USE: TIRES, WIPER BLADES, SEALS, BELTS

Natural rubber processing generates effluents that pollute surface water, leading to eutrophication and "dead zones."

### PLASTIC

USE: BUMPERS, BODY AND INTERIOR PARTS, DASHBOARDS, PART HOLDERS

Plastics come from fossil fuels and their manufacture is energy-intensive. Production results in toxic emissions, including VOCs.

RISK LEVEL:

MEDIUM HIGH

# HOW CAN STANDARDS AND AUDITING SUPPORT THE TRANSITION TO **A CIRCULAR ECONOMY BUSINESS MODEL?**

Companies may find it daunting to transition to a circular economy business model because of the sheer number of processes and volume of materials involved in production. We talk through four key steps, and explain how auditing and certification provide a pragmatic way to implement a circular economy business model.

## **STEP 1:** **IDENTIFY CIRCULAR OPPORTUNITIES IN THE EXISTING SUPPLY CHAIN**

Today's supply chains are mostly linear: they consume materials, and move products from transformation, to manufacturing, to distribution and consumption. These products are then used and discarded, or some limited recycling occurs.

To transition from a linear to closed-loop supply chain, companies need to assess their materials and suppliers to ensure they are identifying reuse opportunities wherever possible, and adhering to industry best practice in responsible sourcing.

One major issue is the complexity of modern supply chains. Specific management systems and certification schemes exist for commonly-used (e.g., forest and wood products) and high-risk materials (e.g., metals and minerals). These schemes, examples of which are provided on pg. 11-12, are designed to improve traceability and enable brands to set and monitor environmental and social objectives in their supply chain.

## **STEP 2:** **ENSURE EFFICIENT RESOURCE USE**

Renewable energy is a driving force behind the transition to a greener global economy. Efficient resource use—particularly metals & minerals, energy and water—is closely connected to the circular economy business model because it is key to reducing emissions and other waste. The ultimate goal is to close loops in the supply chain by using and reusing resources to their maximum potential.

To use resources efficiently first requires understanding current consumption. Energy Management Systems such as ISO 50001, and water footprinting methodologies such as ISO 14046, can be used to assess, understand and monitor resource use with a view to sourcing renewable energy systematically, and closing water and energy loops. Greenhouse Gas (GHG) emissions reporting also requires best practice energy and resource efficiency.



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## A CIRCULAR ECONOMY BUSINESS MODEL?

Steps 1 and 2 provide companies with all the basics, helping them manage environmental impacts and achieve traditional sustainability objectives through selected changes. Steps 3 and 4 offer a more innovative, in-depth approach, allowing companies to rethink their production processes and fully embrace a circular economy business model.

### STEP 3: CREATE RADICAL INNOVATION IN THE SUPPLY CHAIN AND PRODUCTION PROCESS

The circular economy business model requires a complete break from linear ways of thinking. For some companies, this may seem like a major hurdle, but organizations undertaking a radical rethinking of their “business as usual” across the supply chain or production processes are unlocking a host of new opportunities.

One example of this is in the chemicals industry. Renewable feedstock, which is partially derived from waste, is being used as input for chemical processes, instead of traditional fossil fuels. Similarly, bio-based products are being used to create biodegradable plastic used in the collection of bio-waste.

Opportunities for this type of radical innovation can typically be identified during the assessments carried out as the first step in management systems implementation, notably ISO 14001:2015 with its emphasis on considering a life cycle perspective for products. Material Flow Cost Accounting (MFCA), meanwhile, enables companies to trace and quantify flows and stocks of materials to understand costs and reduce adverse environmental impacts.

By understanding where the biggest environmental impacts are using recognized methodologies, companies can highlight areas for improvement and rethink processes.

### STEP 4: DESIGNING NEW PRODUCTS AND PRODUCTION SYSTEMS THAT EMBRACE THE CIRCULAR ECONOMY BUSINESS MODEL

Rethinking the relationship between resources, product design, and supply chains helps companies develop closed-loop product production systems designed for multiple life cycles.

Environmental management (ISO 14001) and other standards from within the same family can help companies identify the need for new products (e.g., via their assessment of stakeholder needs) via their assessment of stakeholder needs. They can also provide a framework for companies to assess, and continually improve, the environmental impact of any new products. Integrating circular economy principles into new product design and development, including procurement and supply-chain, can improve material sourcing and acquisition, material simplification, design for disassembly, product durability & repair and even product take-back schemes or leasing business models.

Companies specifically need to consider the GHG emissions generated throughout their products’ life cycle, including both manufacturing and transportation. Understanding and measuring emissions is the first necessary step to identify improvements for existing products, and design low GHG emissions into new products. This approach can be supported by verification of emissions data.



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# AUDITING AND CERTIFICATION TO SUPPORT **CIRCULAR ECONOMY**

A range of management systems and other standards support a circular economy business model.

## **HOLISTIC SYSTEMS AND RESOURCE USE**

- **Environmental management:** Led by top management, ISO 14001 begins with a business-wide analysis of social and environmental impacts. The recently updated standard encourages a life cycle view of products and services, and provides a framework for addressing impacts, facilitating the move toward a circular economy business model.

- **Eco-design:** Although they are not available as certification schemes, certain standards deepen environmental considerations in product development. These include: ISO 14006 ; ISO 14009 Guidelines for incorporating eco-design; Guidelines for incorporating redesign of products and components to improve material circulation; and IEC 62959 Environmental Conscious Design (ECD) - Principles, requirements and guidance.

- **Circular Economy:** BS 8001 – Framework for implementing the circular economy in organizations, XP X30-901 – Circular Economy Management System for circular economy projects.

- **Life Cycle Assessment:** Carbon footprinting of products (ISO 14067), life cycle impact assessment (ISO 14040 family) and water footprinting (ISO 14046) approaches help organizations to identify environmental impact hotspots in value chains.

- **Material Flow Cost Accounting (MFCA):**

ISO 14051:2011 provides a framework for MFCA, enabling organizations to identify opportunities to reduce environmental impacts while generating financial benefits. ISO 14052 provides guidance for the practical implementation of MFCA in a supply chain; ISO 14053 is used for SMEs.

- **Energy: ISO 50001:** Energy Management Systems (EnMS) certification and associated energy use reduction schemes enable you to understand energy use, reduce consumption and close loops.

- **Greenhouse Gas (GHG) Emissions:** A range of verification schemes help you ensure transparency: for example, verification of organizational GHG emissions for the European Union's Emission Trading Scheme (EU ETS), other regional and national cap and trade schemes, voluntary organizational GHG inventories, or the CDP (e.g., using ISO 14064-1 and the GHG Protocol). Carbon offset project validation and verification is also used for voluntary schemes like the Gold Standard, VCS and green bonds (e.g., Climate Bonds Initiative) for carbon finance.

<sup>7</sup> Draft International Standard (DIS) at the time of writing

<sup>8</sup> Draft International Standard (DIS) at the time of writing

# CERTIFICATION TO SUPPORT CIRCULAR ECONOMY

## SUSTAINABLE USE OF MATERIALS

- **Forest and wood products:** Certification schemes such as the Program for the Endorsement of Forest Certification (PEFC), the Forest Stewardship Council (FSC) and auditing regulatory compliance to European Union Timber Regulation (EUTR) offer options to demonstrate greater transparency.

- **Metals and Minerals:** Precious metals (London Bullion Markets Association [LBMA], Responsible Jewelry Council [RJC]) conflict metals (Tungsten, Tantalum, Tin, and Gold [3TG]), more common metal (Aluminium Stewardship Initiative [ASI]) and Responsible Mineral Initiative [RMI]) auditing schemes support independent and credible assurance of sustainability performance throughout these value chains.

- **Biofuels:** Voluntary certification schemes such as 2BSvs, REDcert ensure compliance with the European Union's Directive on Renewable Energy (RED) and International Sustainability & Carbon Certification (ISCC).

## CORPORATE AND SOCIAL RESPONSIBILITY

- **Supplier audits:** The Supplier Ethical Data Exchange (SEDEX) provides an independent framework for responsible sourcing on labor rights, health & safety, business and environment. Sedex Members Ethical Trade Audits (SMETA) and Social Accountability SA8000® certification enable suppliers to prove their responsible labor practices to their customers and other stakeholders.

- **Responsible business practices and materials sourcing:** The Responsible Business Alliance (RBA) provides requirements for responsible materials sourcing, ethical labor practices and supply chain accountability. RBA's Validated Assessment Program (VAP) uses a standard for onsite social and environmental verification. Auditing to this standard provides recognition of a company's ethical supply chain practices and labor conditions.

- **Health & Safety:** Occupational Health and Safety Management Systems (formerly OHSAS 18001, now updated to ISO 45001) ensure consistent protection of both employees and staff.

- **Social responsibility guidance:** Extensive sustainability and social responsibility guidance is offered by ISO 26000.

- **Assurance of Sustainability Reporting (ASR):** Report verification and assurance is offered according to guidelines like the Global Reporting Initiative (GRI), AccountAbility's AA1000 Assurance Standard and the International Federation of Accountants International Standard on Assurance Engagements: ISAE 3000.



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# IMPLEMENTING A CIRCULAR ECONOMY BUSINESS MODEL WITH BUREAU VERITAS

**Bureau Veritas is a global leader in sustainability. Thanks to our many years of auditing experience across all sectors, we have developed Circular+. This suite of sustainability auditing and certification services could help your company develop a powerful, customizable approach that works for you.**

## **BUILDING MOMENTUM DELIVERING RESULTS**

Circular+ helps achieve buy-in from your employees and clients, while ensuring your results are meaningful and your claims credible. Auditing and certification of processes and systems provide you and the companies in your supply chain with a way to track and report objectives over time. Used proactively, it helps you deliver the results and momentum you need to propel your journey toward a circular economy business model, positioning your business as truly forward-thinking.

## **FROM AUDITING AND CERTIFICATION TO SUCCESS**

Bureau Veritas offers a wide range of sustainability auditing and certification programs to ensure compliance and continuous improvement across your supply chain. Our experienced auditors are proficient in all standards related to environmental and social responsibility. We also offer one of the widest ranges of specialist certification schemes related to specific products, materials and sectors.

Bureau Veritas provides training sessions for specific programs—including the environment, health & safety, energy and social accountability management—to help you ensure your workforce is well-informed on these topics and implements the changes required.



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## ABOUT BUREAU VERITAS

Bureau Veritas is a world leader in testing, inspection and certification. We help clients across all industries address challenges in quality, health & safety, environmental protection, energy, enterprise risk, sustainability and social responsibility. We support them in increasing performance throughout the life of their assets and products and via continuous improvement in their processes and management systems. Our teams worldwide are driven by a strong purpose: to preserve people, assets and the environment by identifying, preventing, managing and reducing risks.



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