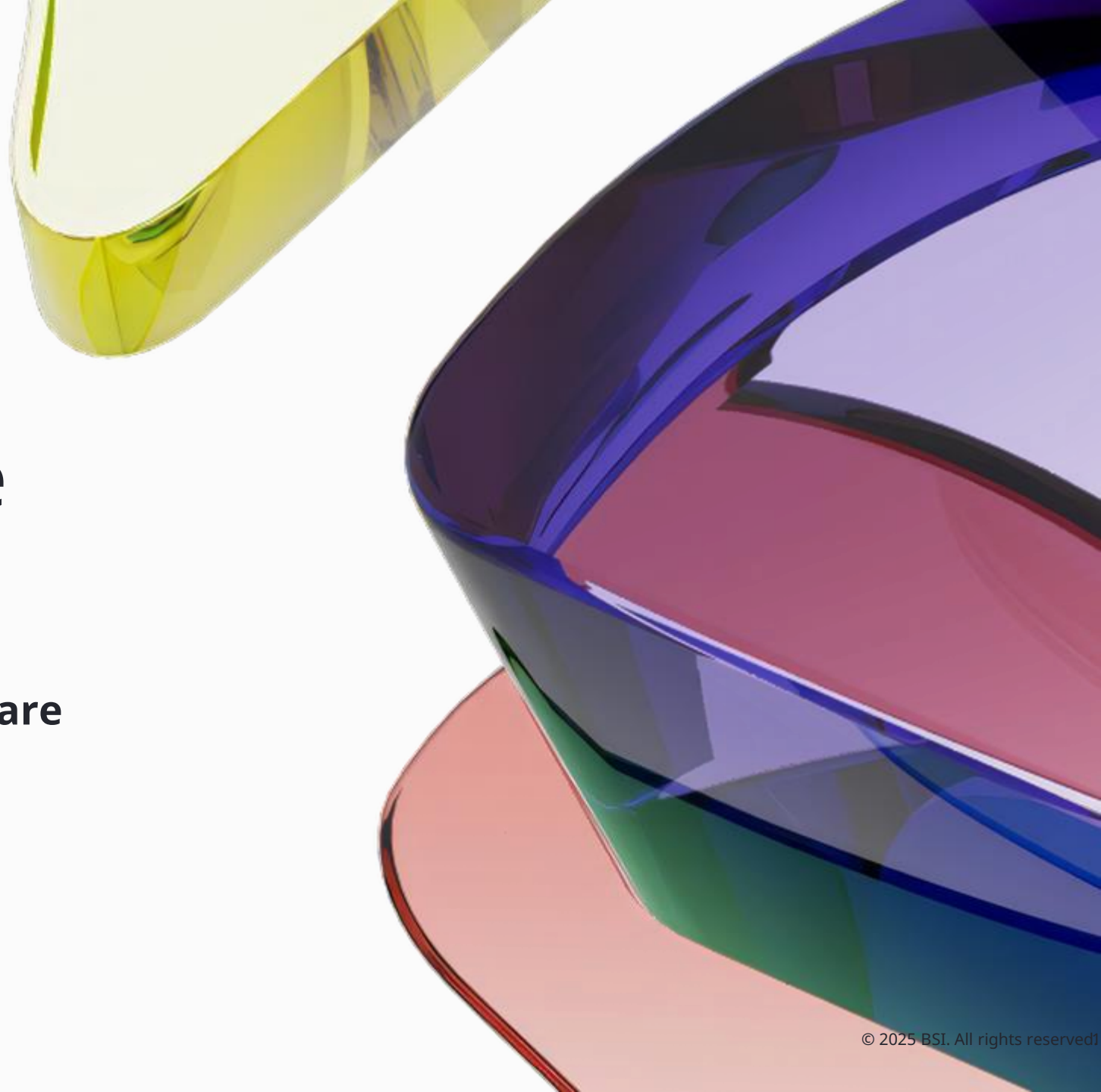
The Tipping Point: Building trust in the circular economy

Pharmaceutical, MedTech, & Healthcare sectors



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01 – Trust in the circular economy

Our current dominant economic model operates on a linear trajectory: extract resources from the earth, manufacture products, use them, often briefly, and then discard them as waste.

This linear ‘take-make-waste’ system, fuelled by the assumption of abundant resources and limitless disposal capacity, is increasingly revealing its inherent flaws. According to the UNEP, global material consumption has more than tripled since 1970, and continues to rise. At the same time, global waste generation is also on an upward trajectory. The World Bank estimates that global municipal solid waste generation will increase by 70% by 2050 if current trends continue.

According to estimates in the 2024 Circularity Gap Report, the global economy is only 8.6% circular; a slight decrease from 9.1% in 2018. The unsustainability of this linear path is no longer a distant concern; it is a present reality demanding a fundamental shift in thinking.

86% globally think circularity should be a priority for business and governments in addressing environmental challenges

The circular economy (CE) offers a compelling and necessary alternative. It represents a systemic shift towards an economy that is intentionally designed to be restorative and regenerative. While its economic and environmental logic is compelling, its successful widespread adoption hinges on a less tangible but equally critical factor: trust.

A transition to circular models requires significant shifts – not only consumer behavioural change, but also expectations from all participants in the economy. Business must embrace new models, invest in reverse logistics, redesign products, and often collaborate more deeply across the value chain. Consumers, in turn, are asked to engage differently – accepting refurbished or remanufactured goods, participating in take-back and return schemes, opting for product-as-a-service models over ownership, and potentially altering long-standing consumption habits.

Trust in the CE is the result of deliberate, consistent actions and verified commitments. Building trust requires acknowledging and addressing several barriers that currently impede progress. However, these challenges also present opportunities for businesses willing to lead the way. By building trust in the circular economy for businesses and consumer alike, we can accelerate progress towards a tipping point whereby a circular approach becomes the go-to approach.

56% of people said a lack of trust in quality might prevent them from buying or using circular products

02 – Circularity in pharma and healthcare

The healthcare and life sciences sectors are immersed in innovation and rapidly advancing technologies, consistently pushing the boundaries of what is possible in healthcare. These innovations and technologies are not limited to diagnosing, preventing, monitoring, and treating disease and illness, but also encompass advancements in our awareness and understanding of the impact we as an industry have on the environment – and what we can collectively and individually do to mitigate negative impacts and possibly reverse the harm we have contributed to the environment.

Healthcare, pharmaceuticals, and MedTech are a critical yet complex area for circular economy interventions. They generate large volumes of waste, consume significant resources (i.e. rare earth metals and high-grade plastics), and operate under strict regulatory, sterilization, environmental pollution, and safety requirements that often favour disposable materials and incineration practices.

Hospitals, clinics, and care centres rely heavily on single-use plastics, disposable personal protective equipment, and sterile packaging – much of which ends up in incineration or landfill. MedTech and pharmaceutical manufacturers are setting ‘Zero Waste to Landfill’ targets, yet still much hazardous and non-hazardous waste from manufacturing MedTech and pharmaceutical products is incinerated as the alternative to landfill.

Pressure to reduce environmental impact is increasing. The sector is increasingly recognizing the importance of waste reduction in healthcare systems' green tender requirements procurement, particularly collating to the need to secure supply of these critical commodities.

The healthcare and life sciences sector accounts for 5% of global GHG emissions, and there is a recognition that climate change is not only an environmental issue, but also a public health issue, driving healthcare organizations to align with broader environmental objectives. This includes a reduction in greenhouse gas emissions, reducing waste, extending life of products, and ensuring the long-term availability of critical healthcare products.

Efforts are emerging to implement circular strategies, such as reprocessing of medical devices, use of reusable materials, and improved pharmaceutical waste management and wider takeback collection programs.

Nevertheless, the transition remains imbalanced, shaped by regulatory variation, perceived sterilization and decontamination risk, and institutional conservatism.

Barriers

Along with necessary strict sterilization, decontamination and regulatory standards with limited cross-border harmonization, other barriers to circularity in the MedTech, pharmaceutical and healthcare sectors include:

Perceptions of risk

Even where reuse is technically safe and approved, healthcare professionals may be hesitant to adopt reprocessed or circular products due to perceived sterilization or health risks.

Product liability concerns from manufacturers can also deter innovation for circular products.

Procurement and incentives

Procurement is frequently driven by cost and quality / safety of products and short-term budgeting, yet environmental commercial tender requirements are becoming increasingly more common.

Short-term budgeting may not yet enable incentives for the lifecycle benefits of circular solutions.

Infrastructure challenges

Poor separation of clinical, hazardous and recyclable waste in clinical setting reduces the feasibility of decontamination, recovery and reuse. Many facilities lack the infrastructure and training required to manage waste streams effectively or for outbound reverse logistics.

Regulatory landscape

In order to design for reuse or recyclability, MedTech and pharmaceutical manufacturers face regulatory uncertainty of what will be approved and conflicting national requirements and potential increased for re-approval costs.

Signs of momentum

Despite the barriers, we can see growing readiness for a tipping point. Notably strategic commitments and action by manufacturers and multi-stakeholder networks such as ReturPen and UK DHSC Design for Life are promoting knowledge exchange, policy creation, and encouraging collaborative product circularity pilots. Other signs of momentum include:

Reusable medical products

There is growing adoption of reusable surgical instruments, gowns and diagnostic tools where appropriate sterilization and decontamination standards can be maintained. Studies suggest reusable gowns can reduce emissions by 30%.

Medical device reprocessing

In parts of Europe, and the US, regulated third-party reprocessors are extending the life of single-use devices such as catheters and compression sleeves. This can cut costs by up to 50% while reducing waste volumes. According to research the Global market for reprocessed medical devices is expected to be nearly $7.3 billion by 2027.

Sustainable procurement

Institutions such as the NHS England and Scotland have integrated sustainability into procurement policies. NHS England has committed to achieving net zero emissions by 2040, and a consultation on requiring 30% of packaging coming from recycled plastics, supported by supply chain guidelines that favour low-waste and recyclable materials.

Circular initiatives

Pilot schemes for medicine take-back and recycling from patients are being trailed in several countries, including Denmark, Sweden, the Netherlands and the UK. These initiatives aim to limit pharmaceutical pollution and encourage safer disposal practices.

Different initiatives

Existing initiatives exploring the role of standards in the MedTech circularity challenge specifically include the following:

Design for Life

- UK Government's Medical Technology Strategy - February 2023
- Highlighted **six key challenges** facing the MedTech industry in the UK.
- Creation of Design for Life (DfL) collaborative
- Explore and identify practical actions that address the challenges facing MedTech in the UK

JAG5

- Joint Advisory Group #5 (JAG5) created Sep 2021 by IEC TC 62 and ISO/TC 210.
- Advise on issues related to the life cycle of medical devices, emphasising environmental and circular economy aspects
- **Six recommendations** for standardization activities on medical device life cycle aspects

Standards committees

- National committee persona's perspective – lack of resources and more focus on regulatory/quality/ safety issues
- ABHS – lack of direction and interest in European regulation changes
- ISO MedTech committees have other priorities

03 – Global consumer survey findings

Our survey* found that fewer than half of people (43%) working in the healthcare sector are familiar with the concepts of circularity and the circular economy. However, this rose to 66% for those in pharmaceutical and MedTech life sciences, second only to those in the technology sector.

This suggests the pharmaceutical and MedTech sectors demonstrates a higher-than-average understanding of engagement with circularity than other sectors, notably more so than the healthcare sector more generally.

After being provided with examples of circularity within the healthcare, MedTech and pharmaceutical sectors, attitudes towards circularity were overwhelmingly positive with 86% agreeing circularity should be a priority for businesses and governments in addressing environmental challenges. In the pharmaceutical and MedTech sectors this rose to 88%. Furthermore, 68% of people ranked creating positive environmental impact as a top three driver for them personally to adopt circular behaviour.

** Burson/Focal Data survey of 8,225 adults between 7-11 April 2025, in the UK, US, Germany, Netherlands, China, Japan, India and Australia*

Barriers to circularity

In terms of barriers to circularity, 46% and 40% of people respectively ranked a lack of trust in quality and reliability, and a lack of trust in sterilization and decontamination as top three concerns that may prevent them from adopting circular behavior.

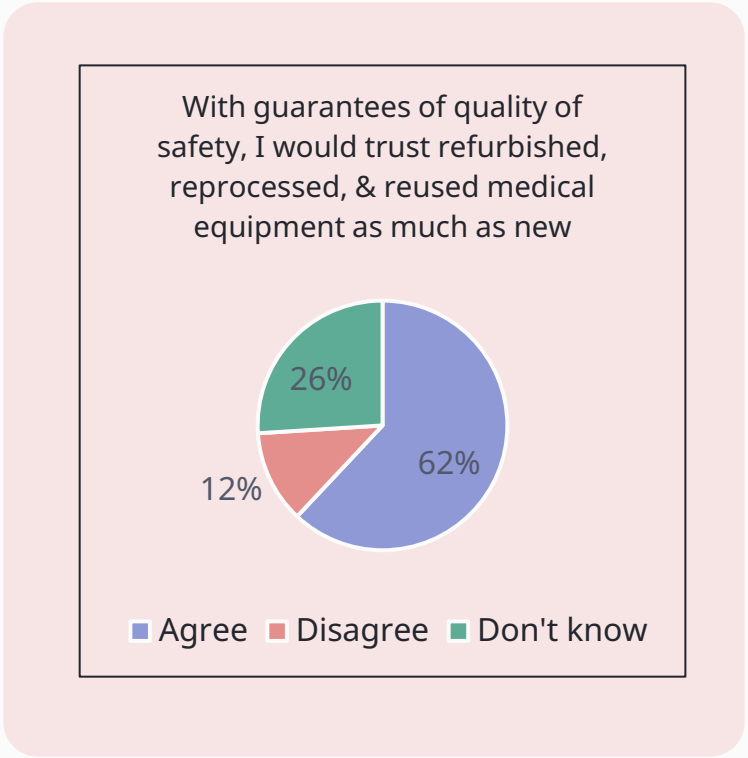
In addition, over half of people (56%) said a lack of trust in quality may prevent them from buying or using circular products, followed by 50% who cited a lack of trust in safety and 49% who cited a lack of trust in reliability.

This suggests that building trust in quality, safety, reliability and sterilization and decontamination of circular products in the healthcare, pharmaceutical and MedTech sectors will be key to driving adoption and uptake.

Building trust in circular medical devices

62% agree that, with guarantees of quality and safety, they would trust refurbished, reprocessed, and reused medical equipment as much as they would trust the use of new equipment.

In addition, 60% said that where safe and sterile to do so, medical devices and equipment, such as insulin pens, injectables, or even large imaging equipment such as MRIs, should prioritize design to enable future reuse, refurbishment, remanufacturing and recycling, even if this increases costs.



Strong support for circularity

Support is also strong for recycling in the pharmaceutical, MedTech and healthcare sectors, with 63% agreeing that practices to reduce waste and enable the safe, sterile recycling of materials and products should be prioritized, even if these are then repurposed for use in other sectors such as construction materials or consumer goods, and even if it comes at a higher cost.

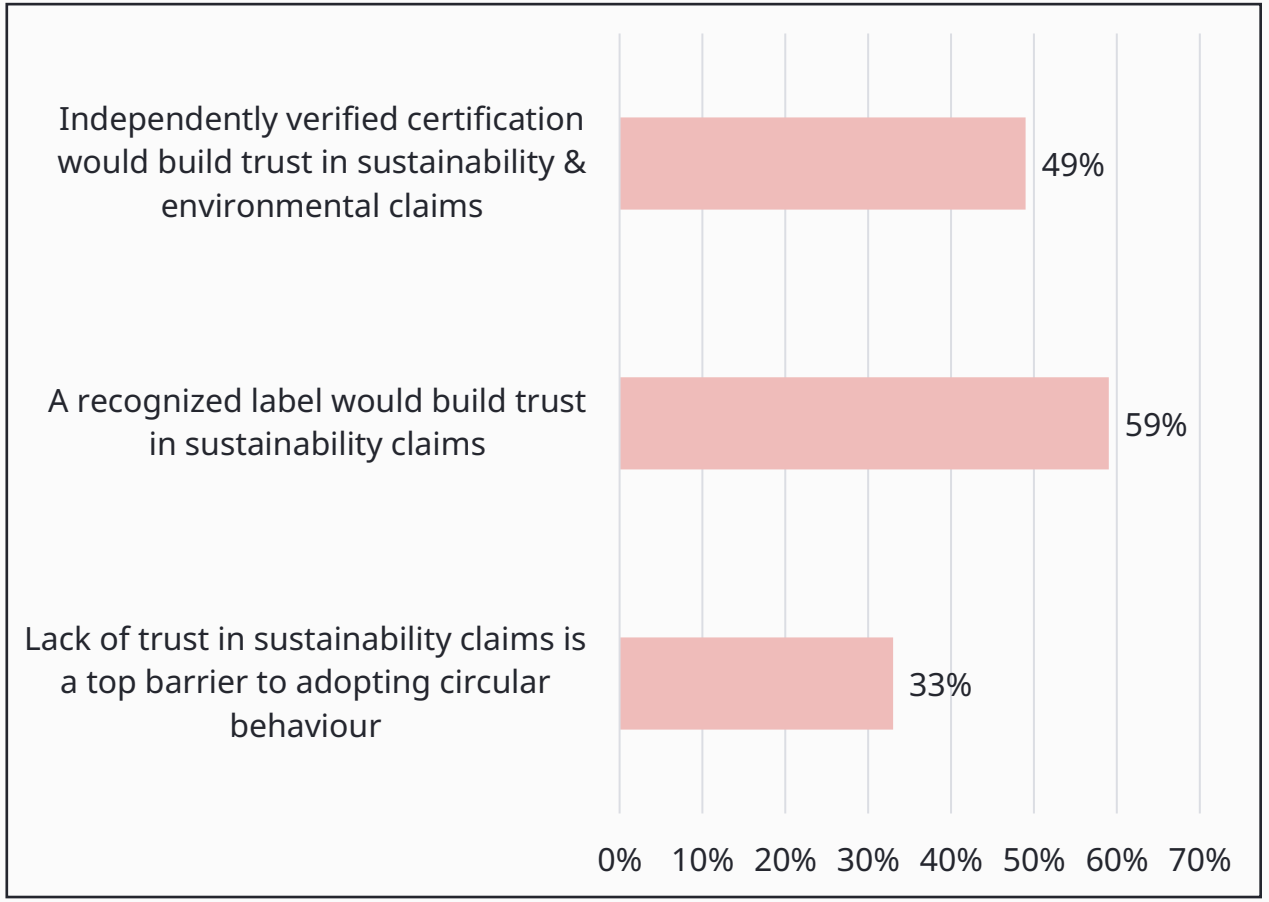
In terms of initiatives patients can directly support within the MedTech and pharmaceutical sectors, such as engaging in take-back schemes, willingness to engage is high; 64% would be willing to participate in the circularity of healthcare products by taking back blister packs and used injectables to the nearest pharmacy or sending through the post.

63% agree waste reduction and recycling practices should be prioritized in the pharma and healthcare sectors, even if it increases costs

Trust in circular sustainability and environmental claims

A third of people (33%) said a lack of trust in sustainability and environmental claims is a top barrier that may prevent them from engaging in circular behaviours or trusting circular products.

Promisingly, 59% said trust in sustainability and environmental claims could be built with a recognized label such as a BSI Kitemark, and 49% said the same for independently verified certification.



04 Action-orientated progress

BSI is seeking to bring sustainability and circular economy discussions from a policy level to an application level – essentially less talk, more action.

Standards offer the potential to drive consensus across the healthcare eco-system. As such, we have run several workshops where we discussed numerous standards to determine their relevance to the barriers of circularity, but also their ability to drive alignment and consistency among manufacturers and other external stakeholders in transitioning to a circular ecosystem.

This transition in healthcare and life sciences requires many steps by many stakeholders to build the foundation for a mature circular economy that ensures sustainable product design without compromise to availability, efficacy, or patient safety. This transition is not going to be the same for every manufacturer or every device; and it is unrealistic to expect devices will be 100% sustainable. Some will stay single-use and end up in the incinerator or landfill, some will continue to be made from virgin raw materials, and some will have a higher carbon footprint than other healthcare products. We must also understand that the transition to a circular healthcare ecosystem does not have a finite endpoint; it is itself circular, with fluctuations in environmental impact caused by changes in supply chain, environmental conditions, geo-politics, and other factors external to healthcare.

BSI is committed to driving action through sector standards and independent assessment, by engaging further with regulators, healthcare systems, manufacturers, trade associations, policy makers, academia and other stakeholders across the healthcare value chain.

Action-oriented progress, BSI-led

The standards community is taking proactive steps on sustainability and circularity issues in healthcare and the life sciences, establishing new advisory and standards subcommittees to address these topics directly.

Standards committee initiatives - ISO

ISO/TC 210 Quality management and corresponding general aspects for MD

JAG 5 Medical Device Life Cycle - Advise on issues related to the life cycle of medical devices, emphasising environmental and circular economy aspects

Six recommendations for standardization activities on medical device life cycle aspects

Standards committee initiatives – EN/CEN

BSI chairs the newly created CEN-CLC/SAG Healthcare European standards advisory group. The focus of the group is to analyse and provide strategic insights into the current landscape around circularity and sustainability. The goal is to shape recommendations for international adoption of standards by identifying gaps, challenges and opportunities to promote environmental responsibility.

Standards committee initiatives – BSI

The committee CH/210/7 “Circularity in Healthcare” has recently been created with responsibility for the preparation, revision and amendments of British standards, as well providing UK input to European and International standards in the field of circularity in healthcare (specifically for medical devices and facility considerations), and ISO and European healthcare standards. BSI is also collaborating directly with the Danish Standards body in the MedTech circularity space specifically, and engaging in cross-industry sharing for standards development.

Next steps

BSI is committed to driving action through sector standards, by engaging further with regulators, healthcare systems, manufacturers, trade associations, policy makers, academia, and other stakeholders across the healthcare value chain.

To this end, there are several immediate, mid- and long-term actions that have been identified through engagement with multi-stakeholder collaborations. These actions are being reviewed and prioritised, with a plan to communicate and seek engagement later this year. Additionally, BSI has outlined the following considerations that were identified by stakeholders as relevant to the healthcare and life sciences sectors and as a priority towards enabling a circular ecosystem in healthcare:

Explore the full research

The Tipping Point: Building trust in the circular economy

04 – Appendix
Recommendations, tools and solutions

Whilst other activity is in progress to directly impact and influence the emerging challenges in healthcare and life sciences circularity, there are existing standards that industry and multi-stakeholders can use to accelerate their progress towards a more sustainable world. The below standards have been identified as relevant to be used in the circularity implementation journey now.

Framework for implementing the principles of the circular economy in organizations (BS 8001)

BS 8001 was the world's first standard to offer a practical framework for organizations to implement the principles of the circular economy. Relevant to organizations from all sectors, the standard provides guidance and recommendations that will help an organization turn the circular economy concept and theory into practical action.

This framework can provide a structured approach to managing resource flows, evaluating risks, fostering collaboration across the supply chain, developing innovative business models, and adopting a holistic perspective throughout the entire product and service lifecycle.

Learn more about BS 8001
Explore BS 8001 training

Recommendations, tools and solutions

Dependability of products containing reused parts. Requirements for functionality and tests (BS EN IEC 62309)

This standard provides a framework for ensuring the dependability of new products that incorporate reused parts or have undergone life extension. It addresses the growing need for sustainability while maintaining product reliability by promoting sustainable manufacturing, enhancing consumer confidence and supporting regulatory compliance and quality assurance.

Learn more

Method to achieve circular designs of products (BS EN 45560:2024)

This standard provides a structured method for integrating circular economy principles into product design. It helps organizations design products that are more sustainable, resource-efficient, and easier to reuse, repair, or recycle

Learn more

Recommendations, tools and solutions

Design for manufacture, assembly, disassembly and end-of-life processing (MADE) (BS 8887 Series)

The BS 8887 series is a suite of British Standards focused on Design for Manufacture, Assembly, Disassembly and End-of-Life Processing (MADE). It supports sustainable product development by guiding how products can be efficiently made, maintained, reused, remanufactured, or recycled.

Learn more

Environmental Management Systems (EMS)
ISO 14001

Environmental Management Systems support organizations in identifying environmental impacts and optimizing processes to reduce waste, energy and emissions across supply chains enabling continuous improvement toward more circular and sustainable operations.

Explore ISO 14001 – Environmental Management Systems

Recommendations, tools and solutions

Life Cycle Assessment (LCA)
ISO 14040 & ISO 14044

Life cycle assessment can be used to quantify environmental impacts of products, helping organizations make informed, sustainable decisions across a product's entire life cycle.

Learn more about ISO 14040 – Life Cycle Assessment Principles Framework

Explore ISO 14044 – Life Cycle Assessment requirements and guidelines

Bio-based products. Life Cycle Assessment (BS EN 16760:2015)

An international standard used for life cycle assessment of bio-based products, building on ISO 14040 and ISO 14044.

Learn more

Recommendations, tools and solutions

Plastics. Carbon and environmental footprint of biobased plastics - Material carbon footprint, amount (mass) of CO2 removed from the air and incorporated into polymer molecule (BS EN ISO 22526-2:2021)

This standard defines the material carbon footprint of bio-based plastics as the mass of CO_2 removed from the air and incorporated into the polymer. It provides a methodology to quantify this footprint for plastic products, materials, and resins. Applicable to items partly or wholly made from bio-based constituents, supporting transparent environmental claims.

Learn more

Guide to the development and inclusion of aspects of safety in International Standards for medical devices (PD ISO/IEC GUIDE 63:2019)

This document provides requirements and recommendations to writers of medical device standards on the inclusion of aspects related to safety in International Standards, based on well-established risk management concepts and methodology.

Learn more