Dutch Sustainable Growth Coalition Deep Dives:

Optimizing Lifecycle Asset Management as a key driver to a Circular Economy

---

The **Dutch Sustainable Growth Coalition (DSGC)** is a partnership, uniting eight leading multinationals (AkzoNobel, dsm-firmenich, FrieslandCampina, HEINEKEN, KLM, Philips, Shell, Unilever). The DSGC stimulates the development of sustainable business models through multi-stakeholder collaboration. In this way, the DSGC aims to accelerate progress on the Sustainable Development Goals (SDGs) of the United Nations, with a focus on three transitions: climate, circularity, and social equity.

One of the key activities of the DSGC is organizing **deep dives** where public and private stakeholders come together to address critical challenges on the sustainability agenda. This document reflects the insights from the 2024 deep dive session **'Optimizing Lifecycle Asset Management as a key driver to a Circular Economy'**. It aims to provide clear understanding of the discussions and outcomes from the deep dive including follow-up initiatives.

Please note that this document reflects insights gathered during the deep dive sessions and should not be interpreted as the official position of the DSGC, its members, or other consulted organizations.

Executive summary

In 2023, the Dutch Sustainable Growth Coalition (DSGC) conducted a deep dive to assess the key performance indicators (KPIs) for national targets related to the National Circular Economy Program (NPCE). The NPCE focuses on four levers: (1) reduction in the use of raw materials, (2) substitution of raw materials, (3) lifetime extension of products and (4) high-grade processing. During the 2023 deep dive, DSGC members proposed key performance indicators (KPIs) and recommendations for these levers, highlighting the need to:

- Assess the interrelationship between the four operational levers and impact areas (climate, clean environment, biodiversity, and material supply) to ensure effective steering towards desired outcomes.
- Develop multiple KPIs for each lever to address the diverse circular practices and industry roles.
- Utilize sectoral data and stakeholder alignment to evaluate the feasibility of targets.

A significant challenge that was identified, centered around the difficulty in establishing tangible metrics for the third lever: lifetime extension. While the NPCE emphasizes extending product lifetimes through reuse, refurbishment, and repair, the definition of "lifetime extension" remains ambiguous. The session underscored three main recommendations to advance this lever:

1. Establish specific quantitative targets in collaboration with manufacturers of high-value equipment to create actionable KPIs for high-R strategies.
2. Clarify the definition of lifetime extension, particularly for products undergoing multiple repair and refurbishment cycles.
3. Encourage a focus on both product lifetime and material value intensity, promoting innovative business models such as "product as a service."

In 2024, a follow-up deep dive explored these recommendations further, focusing on optimizing product lifetime and providing more specific guidance for advancing this lever. The deep dive investigated lifetime extension in the context of high-value capital equipment, which differs significantly from consumer goods. For consumer goods, technical lifetime often aligns with the end of use, whereas high-value equipment can undergo multiple use cycles, including refurbishment and upgrades. This complexity necessitates a broader perspective than merely measuring the initial guarantee period that a manufacturer gives at point-of-sale.

The 2024 deep dive featured a case study led by Philips, focusing on medical equipment. Philips, together with the HagaZiekenhuis and other stakeholders, explored what it would take to use medical equipment in a service-based model, considering potential bottlenecks and solutions. This provided practical insights into how hospitals can adopt circular business models through improved asset management and procurement practices.

Key *bottlenecks* identified during the healthcare-focused case study of the follow-up deep dive included:

- Traditional asset management in hospitals often lack circularity principles due to insufficient ESG targets and inadequate data systems.
- Governance structures are critical for embedding lifecycle asset management into organizational practices.
- The procurement process frequently faces challenges due to a narrow approach to circularity, which can inhibit the adoption of service models.

- Tender processes often fail to support or encourage competitive circular business models.

From these bottlenecks identified, three clear recommendations emerged to advance circularity through optimal lifetime asset management. Although these insights emerged from a dedicated healthcare case study, we believe they are generally applicable across the (capital equipment) manufacturing industry and its customers:

1. **For NPCE: Adopt an end-to-end lifecycle asset management perspective to broaden the focus on product lifetime extension** | This perspective broadens the current focus on lifetime extension to encompass the entire lifecycle of assets, emphasizing optimal use and resource efficiency.
2. **For NPCE: Develop quantitative targets for lifetime extension that cover all aspects of lifecycle management** | It is essential to establish measurable targets for lifetime extension that reflect all aspects of lifecycle asset management, preventing bias towards low-R strategies like recycling.
3. **For hospitals and other customers of large capital equipment: Adopt a sector-specific maturity approach for implementing lifecycle asset management** | Encourage organizations to adopt lifecycle asset management practices through a maturity model that maps capabilities and identifies areas (e.g., explicit ESG targets, robust governance structures) to fully benefit from a circularity. This approach can aid in transitioning to more circular practices across the healthcare sector. Moreover, this approach can be applied more broadly to organizations across industries that depend on robust asset management strategies for high-value equipment.

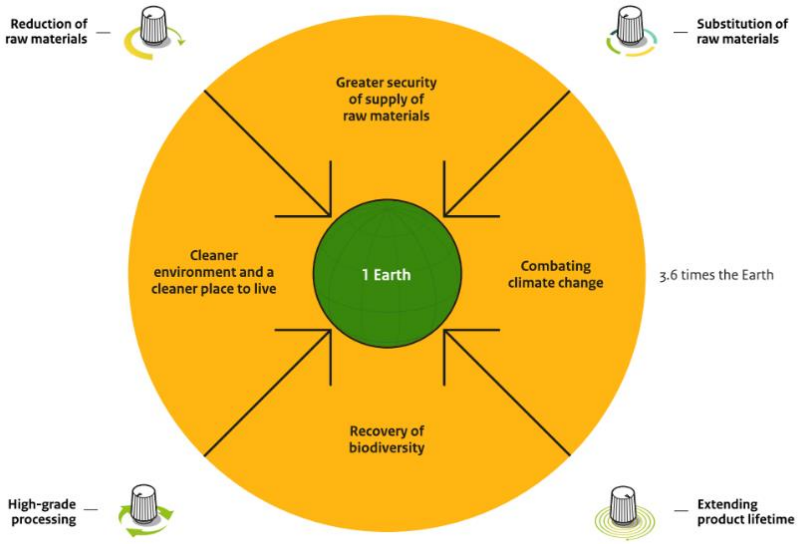
In conclusion, these three recommendations provide tangible steps to advance circularity in capital equipment management, highlighting the importance of collaboration between producers and users, as well as the development of technological and organizational capabilities to maximize resource and minimize environmental impact across industries.

1. Prior work: the first deep dive session in 2023 on "Providing input on national targets for the Dutch National Circular Economy Program"

1.1. Insight and recommendations for national goal setting

In 2023, the DSGC collaborated with the ministry of Infrastructure and Water Management (IenW) to exchange knowledge and insights for the Dutch National Circular Economy Program (NPCE). The Netherlands aims to be fully circular by 2050. Therefore, in the context of NPCE, the Dutch government has set out to develop intermediate goals (2030) at the national level and for different sectors, including manufacturing, build environment, consumer goods, and plastics. Specifically, The Dutch government aims to align sector goals with national goals on *four main levers*: (1) reduction in the use of raw materials, (2) substitution of raw materials, (3) lifetime extension of products and (4) high-grade processing. It also intends to assess the impact of these operational goals on *four impact areas*: combatting climate change, restoring cleaner (living) environment, restoring biodiversity and increasing the security of supply of raw materials (NPCE, 2023-2030).

Figure 1: Framework of four lever to achieve a circular economy and circularity.



Source: Ministry of Infrastructure and Water Management. *National Circular Economy Programme 2023–2030.*

In the 2023 deep dive session, a selection of DSGC members helped to provide potential KPIs and recommendations for each of the four operational levers above. The overarching feedback during this deep dive included:

(1) Assess the four impact areas and the four operational levers in relation to each other, so that is becomes clear how steering on the levers leads to the desired impact;
(2) Do not strive to develop only one KPI per operational lever. Multiple KPIs and targets will most probably be necessary per lever to do justice to wide variety of underlying circular practices, and the role that different industries can play;
(3) Utilize sectoral data and stakeholder insights on circular transition pathways to assess the feasibility of targets per sector or product category.

1.2. Challenges in defining KPIs and targets for the third lever on lifetime extension

Next to this overarching feedback, the 2023 deep dive session highlighted that it was particularly challenging to come up with tangible metrics for the third Lever of the NPCE, which focuses on extending product lifetime. The intention for specifically extending product lifetime is stated in the NPCE as follows:

The NPCE will focus on increasing the lifetime of products and components, among other things through reuse, refurbishment and repair. We propose using a qualitative target, striving for a maximum extension of product lifetime for 2030 (taking into account specific conditions).

Specifically, it was noted that this third lever on increasing the lifetime of product does encompass many of the so-called 'higher R-strategies', which are circular practices that provide the highest value. To respond to these challenges regarding the third lever, the 2023 deep dive session highlighted three key recommendations to further stimulate product lifetime extension:

(1) It was strongly recommended to go beyond the qualitative target mentioned in NPCE by establishing more specific quantitative targets in collaboration with manufactures of high value-equipment. This would involve developing specific KPIs for key 'high-R strategies'.
(2) It was suggested to clarify the *definition* of lifetime extension, as it was unclear what lifetime extensions means for products that, for instance, go through multiple cycles of repair and refurbishment.
(3) Since higher-R strategies focus not only on extending product lifetime (longer use) but also on improving utilization (better use), it is important to consider both product lifetime and the material *value intensity* of products. Well-established metrics and targets for the third lever should also encourage markets to explore innovative business models – e.g. by promoting the concept of "product or resource as a service".

To further develop and work out these recommendations of the 2023 deep dive session regarding the third Lever of the NPCE, it was decided to organize another DSGC deep dive session in 2024, specifically focused on extending product lifetime**,** and providing concrete insights that can further strengthen this lever.

2. The 2024 deep dive session: Assessing lifetime extension for capital equipment

2.1 Lifetime extension is ill-defined and does not cover the full breadth of higher R-strategies

Extending a product's lifetime varies for every product category. Looking at consumer goods, the technical lifetime is often equal to the end of life of the product. For such products, a practical KPI could be to measure the average guarantee period that a manufacturer provides with the product at point-of-sale. In a more circular world, it is expected that this number will increase.

In contrast, for high value capital equipment, the situation is quite different. This type of equipment often stays 'in use' for multiple use cycles, including multiple customers. After the first customer, a product might be taken back by the manufacturer where it can be refurbished and brought to a new customer. Additionally, components of the equipment can be repaired, upgraded, or reused – thereby extending the use cycle of the equipment as well. To complicate matters even further, equipment can also be upgraded and/or changed during the use cycle at a customer. Given these complexities, it should be clear that just looking at the 'initial service time / guarantee period' at the first customer (first 'point-of-sale') would not be a good proxy of the total lifetime of the equipment.

In fact, Lever 3 of NPCE is about much more than just the attributes of a product when it is brought to market (such as the 'guaranteed initial lifetime'). In essence, it focuses on keeping products in use for as long as possible and using it in the best way possible during that time. As described in the NPCE: "Extending product lifetime: *making longer and more intensive use* of products and components through reuse and repair will slow demand for new raw materials ('slow the loop')."". As such, this lever reflects a wide range of 'higher-R strategies' – reuse, repair, refurbish, remanufacture and repurpose. Hence, it is important to develop a (set of) specific KPIs that can represent these 'high-R strategies' and create quantitative targets for them for more immediate implementation for Lever 3. The goal of the 2024 deep dive session was to explore practical ways of creating such targets for the group of circular practices that is focusing on getting longer and more intensive use out of products over their entire lifespan. We call this 'optimizing lifecycle asset management'.

The value of higher-R strategies is most apparent with manufacturers of high-value or high-tech capital equipment. Therefore, Philips has stepped forward to lead this deep dive as DSGC member. To make the session and its discussions even more practical, we decided to look at one specific case study, namely high-tech capital equipment in the medical sector. By doing so, the sessions could be organized with stakeholders* along one single value chain, enabling in-depth discussions. Most of the insights and outcomes can be generalized to the entire sector of the manufacturing industry, or beyond.

2.2 Case study: Maximizing lifetime of medical capital equipment

Philips, a producer of medical equipment, aims to achieve circularity in its products and services under its Circular Economy program. As a manufacturer of high-level capital equipment, Philips can service, take back, refurbish, and rethink its products to become more circular. Hereby, Philips optimizes asset utilization and reduces waste. However, for these circular services to succeed, their customers (hospitals in this case) need to have necessary circular approaches in place (e.g. good governance and ownership of asset management, sustainable procurement policies, budget processes that can transfer between OpEx and CapEx budgets, etc.). Through an open dialogue, and using the Philips and HagaZiekenhuis case as example, we examined what it would take to use medical equipment in a service-based model (or other circular models). Valuable insights and reflections were brought by the financial, procurement, and policy experts from the other participating organizations*. In the session, we investigated potential bottlenecks and explored possible solutions. All solutions that aim to "make longer and more intensive use of products and components" could be classified as "optimizing lifecycle asset management". We realized that it takes quite a mature buying organization (in this case the hospital) to reap the full benefits of this. Therefore, we sketched the contours of a "maturity model" to delineate the different capabilities needed if the medical sector were to further adopt these practices.

<u>Key outcomes from case study</u>

- Traditional asset management processes within hospitals currently often fail to incorporate circularity principles due to a *lack of explicit ESG targets* guiding sustainable practices. This includes inadequate data information systems within hospitals that support asset tracking.
- There is a critical *need for governance structures* that can embed lifecycle asset management into the organizational fabric of the organizations in the sector.

*Participating organization of the deep dive: NLC Health Ventures, HagaZiekenhuis, Philips, Ministry of Economic Affairs, Ministry of Health, Welfare and Sport, Ministry of Infrastructure and Water Management.

- The *procurement interaction* between technology providers and hospitals often faces significant challenges due to a too narrow approach to circularity. For instance, the 'buying process' often starts when a system is broken or at the end of its service contract. This excludes a more holistic view of optimizing during the use cycle.
- *Tender processes* often fail to support or encourage competitive circular business models. For example, a tender most often specifically asks for the sales of a product. In that case, it is inhibited to offer a service-model.

2.3 Three key recommendations to advance circularity through optimal lifetime asset management

Embedding lifecycle asset management capabilities throughout the value chain is crucial to achieve full lifecycle management of the product. Collaboration between producers and users is essential: while producers innovate financing and service models, users must enhance technological and organizational capabilities for effective asset management. This collaborative approach fosters a circular economy ecosystem where stakeholders collectively optimize resource use and minimize environmental impact.

1. In NPCE, adopt an end-to-end (E2E) lifecycle asset management perspective– as a broadening of the current focus on lifetime extension

Lifetime extension focuses on prolonging the lifespan of a specific product through maintenance, repairs, and upgrades, primarily to ensure the product lasts longer than originally anticipated. The concept of extending a product's lifetime varies by category; for consumer goods, the technical lifetime often aligns with the end of the product's lifecycle. In contrast, high-level capital equipment can have its components repaired, upgraded, reused, or refurbished, thereby extending its 'lifetime' across multiple customer use cycles.

For capital equipment, it is more effective to consider the entire lifecycle of the asset and its various components, rather than limiting the focus to a single 'use cycle' with one customer. To enhance circular thinking, we suggest referring to capital equipment as "assets" rather than "products". The term "assets" is typically associated with high-level capital equipment, which is maintained and upgraded over time. In contrast, "products" often refer to consumer goods, which are frequently subjected to a "buy and discard" mentality.

Lifecycle asset management is a more integrated approach in which the entire value chain works together to achieve the maximal technical lifecycle *and the optimal use* during the lifetime of an asset and its different components. The asset is managed and monitored from design to use phase, retrieval, and the new destinations of used components - aiming to optimize resource use and minimize environmental impact throughout all stages. While lifetime extension is a component of lifecycle asset management, the latter supports a broader purpose by considering the complete lifetime and the overall efficiency of resources. Currently, most initiatives focus narrowly on extending an asset's lifetime without considering the entire lifecycle of the asset and its different components. This limited perspective can lead to suboptimal resource use and greater environmental impact. For example, keeping a car stowed away in the garage will increase the lifetime of the car - as compared to a car that drives 100 km a day. However, the *value intensity* of material use will drastically decline, making it a suboptimal choice for resource use. Lifecycle asset management incorporates these elements, ensuring that utility considerations are an integral part of asset management.

A lifecycle asset management perspective broadens asset responsibility to include both producers and users. This approach incorporates a behavioral aspect that encourages more stakeholders along

the value chain to become more conscious of their impact on asset utilization and resource efficiency. Instead of solely focusing on creating durable and sustainable products with extended lifetimes, producers must now collaborate with users to optimize resource use, such as by planning timely repairs, by offering planning and utilization software, or by rethinking assets. Also, users are encouraged to move away from a "buy and discard" mentality, and towards taking ownership in circularity priorities.

Therefore: we propose to leverage lifecycle asset management as a key enabler to achieve the goals set in the NPCE. Lifecycle asset management involves managing assets to extend their technical lifespan, reduce resource consumption, and curtail waste generation. Recognizing that assets often outlast their economic utility, lifecycle asset management promotes optimal lifecycle utilization, enhancing both sustainability and economic efficiency.

2. **In NPCE, develop *quantitative* targets for the 'lifetime extension' lever, covering all aspects of optimizing lifecycle asset management**

Currently, in NPCE, it is proposed that 'qualitative' targets will be set for lever 3 of the national goals 'lifetime extension'. This is probably because, as we also argue in this paper, this lever is quite a complex one that encompasses several high R-strategies -both making longer use of equipment and material but also making more efficient use of the equipment.

The high-R strategies generally focus on the highest value and should therefore be prioritized / incentivized. For that reason, we would strongly recommend that also for this lever, *quantitative* targets will be developed. This would create the right balance with quantitative targets on the other three levers of NPCE, and therefore prevent the creation of false incentives, such as a bias towards recycling and other low-R value practices.

As argued above, the concept of 'lifetime' is ill-defined, especially for (large) equipment. In order for the target(s) to be applicable across sectors, more than one metric will have to be developed. The metrics/targets should minimally account for 'optimal use' [value delivered divided by material used], longer use, and total use over multiple lifecycles. Examples of such KPIs could be:

- Value intensity (euro per kg)
- Amount of refurbished / reused materials in products (explicitly separated from recycled content)
- Assessment of total lifetime from first point-of-sale through to final point of recycling
- Potentially also more enabling KPIs, like 'design for reuse, design for refurbishment, etc.'

The current deep dive was too short to work out the above in full. Our recommendation would be to convene the manufacturing / capital equipment sector, together with knowledge partners like TNO, PBL, and the ministry, to develop relevant and practical KPIs together, building on all current insights.

3. **For organizations in healthcare and/or other capital equipment sectors: Take a sector-specific maturity approach for the implementation of lifecycle asset management**

We encourage users of high-level capital equipment to adopt and implement lifecycle asset management and lifecycle models to ensure that stakeholders can work together throughout the value chain to optimize the entire lifecycle of a product, from optimal material use to maintenance, and to end-of-use decisions. This shift requires not only a new mindset but also potentially a reorganization of roles and responsibilities. In many cases, as we observed, no single person or team is assigned clear ownership of lifecycle asset management, leading to fragmented approaches and suboptimal outcomes.

In fact, the asset management approach might entail quite a *fundamental mindset shift*: instead of looking at the procurement, maintenance and discarding of individual pieces of equipment, an organization would take an integral perspective on the entire equipment fleet and try to optimize its use across the whole organization. We learned from the case study, that many hospitals do not have a central role that would take this view, at least not for their medical equipment. Individual purchasing decisions are often made in individual medical units of the hospital, e.g. by department heads. This has the risk of siloed and potentially suboptimal decision-making.

Changing mindsets, and potentially organizational structures is not easy. Therefore we concluded that a *maturity approach* might help to guide organizations that want to implement integral asset management step-by-step. Insights from the case study of HagaZiekenhuis and Philips were used to derive a first high-level maturity model, where we have mapped necessary capabilities and actions across different maturity levels.

Who can use this maturity model?

The maturity model can directly serve as a helpful guide for *individual hospitals* to map their own asset approaches and identify areas for improvement.

It might also be helpful to share and discuss this model in the context of the *Green Deal Duurzame Zorg 3.0*, to support sector-wide progress. The Green Deal Duurzame Zorg 3.0 focuses on sustainable healthcare, by ensuring 'green and climate neutral healthcare with minimal emissions and impact on the living environment'. One of its focus themes is circularity, yet the theme mainly targets medical waste and the reuse of medical tools. We believe that this maturity approach can be a great addition to the knowledge resources of the Green Deal Duurzame Zorg, providing an extra element of circular processes in asset management.

Lastly, we believe that these insights are not only helpful for hospitals but can be informative for *all organizations that use high-level capital equipment* and require asset management approaches. We have extrapolated the findings of the maturity approach to be applicable for all high-level capital equipment-using organizations.

Key dimensions identified in the second session

Using the insights of the case study, we identified five key dimensions that facilitate the transition to lifecycle asset management. For every key dimension below, we have outlined four maturity levels (see Table 1). At each maturity level, different key capabilities and actions are required. We have summarized our findings on these capabilities to develop a trajectory for organizations to adopt lifecycle asset management.

- **Governance** | Developing and implementing strategies for circular transformation.
- **Financing** | Adopting circular financing models that facilitate lifecycle asset management.
- **Operations & Technology** | Implementing systems for lifecycle asset management.
- **Procurement** | Integrating circular procurement criteria to aid lifecycle asset management.
- **People & Skills** | Cultivating a culture of sustainability through education and training.

Table 1: Lifecycle asset management at different maturity levels

	1. Inactive	2. Proactive	3. Explorative to systematic	4. Integrated
Governance	Minimal awareness of lifecycle asset management at the C-level. Other departments may recognize lifecycle asset management but struggle to communicate effectively with higher management. Strategy focuses solely on procurement and finance; no ESG metrics or KPIs are in place.	Organizations acknowledge lifecycle asset management and explore specific data asset strategies. Basic KPIs are established, but circular performance tracking is limited.	Use of available and new data enables adoption of circular strategies in procurement, finance, and internal process planning. Detailed KPIs are established, with regular performance tracking and reporting.	C-level fully embraces lifecycle asset management as a strategic imperative. Clear lines of responsibility are established; all hierarchical levels are engaged. Leaders collaborate with industry peers and stakeholders across the value chain. Data-driven decision-making leads to predictable costs and enhanced collaboration. A supervisory body oversees asset management optimization across departments. Advanced performance measurement systems ensure continuous improvement based on metrics.
Financing	High CapEx budget and low OpEx budget limit transition to service-based models. Organizational culture is focused on long-term asset acquisition.	Initial steps toward budget allocation for leasing agreements and service contracts.	Organizations adopt a balanced approach, allocating OpEx budgets towards strategic circular goals. Focus on developing service business and refurbished product propositions through client relationships and reverse logistics collaboration.	High OpEx budgets are fully integrated; organizations allocate funds for ongoing service and leasing contracts. OpEx budget allocation is critical for financial planning, including maintenance, repair, and technology upgrades in new access contracts.
Operations & technology	Equipment is used until failure, with minimal maintenance efforts and no consideration for reuse or recycling. Lack of automatic connection between ICT and BIM systems; data is collected only for necessary replacements. Organizations operate in silos with separate responsibilities, leading to suboptimal circular outcomes.	Routine maintenance is performed to extend equipment life; some efforts are made to recycle parts. Regular maintenance schedules are established, and organizations begin collecting data on asset usage.	Proactive maintenance and scheduled upgrades maximize equipment lifespan. Systematic recycling and parts recovery programs are implemented. Predictive maintenance uses data analytics to anticipate and prevent failures. Hardware and software are connected for an overview of asset usage and management.	Comprehensive lifecycle asset management includes refurbishment and repurposing of equipment. Extensive recycling of all components is standard; there is an automatic connection between relevant systems. AI plugins enhance data analysis and connectivity. Integrated maintenance strategies include regular updates on part replacements, with proactive fleet management prioritized to achieve lifecycle asset management.

Procurement	Traditional linear procurement methods (buy when broken); no circular criteria in procurement strategies (focus remains solely on cost and functionality). Collaboration and contract management with suppliers on circular initiatives is very limited.	Occasional circular procurement initiatives are noted, but no systemic approaches are in place Ad hoc incorporation of circular criteria in procurement Supplier collaboration is primarily focused on adherence to procurement guidelines. Producer and consumer are not optimizing their relationship yet as there are low levels of data sharing on lifecycle asset management.	Emerging circular procurement policies and systematic inclusion of circular criteria in procurement processes. Organizations show a growing preference for sustainable suppliers and regular collaboration on joint circular projects. Data on capital equipment usage is shared with producers to optimize lifecycle asset management.	Circular procurement is a strategic priority; all suppliers are evaluated based on comprehensive circularity criteria. Continuous improvement and scaling of procurement practices. Deep, strategic partnerships with suppliers focus on circular goals.
People & skills	Little to no awareness of circular economy principles throughout the organization; traditional linear thinking dominates. Lack of training and awareness of circular practices and linear mindset prevails. Limited sustainability and data collection/management expertise.	Initial awareness of circular economy concepts, but isolated initiatives lack broad support. Basic training initiatives on circular principles are introduced. Organizations assess necessary capabilities/expertise for lifecycle asset management.	Growing commitment to circular principles and pockets of circular mindsets emerge. Knowledge building is prioritized; information is shared across all organizational levels. Structured training programs enhance circular competencies and proactive mindsets become a focus. Organizations acquire new talent in digital transformation/sustainability or train current staff in new technologies and strategies.	Circular economy principles are embedded in organizational culture. Knowledge sharing on lifecycle asset management increases awareness across stakeholders and ensures collaboration. Organizations emphasize continuous education and advanced training programs, fostering a circular mindset deeply integrated into the culture. In-house expertise is developed to adopt lifecycle asset management effectively.
KEY ACTIONS	**Proactively at organization**			
	Conduct a baseline analysis of the equipment fleet, including total amount and value, location, average utilization, and variations across organizational units. Identify key opportunities for optimization and implement pilot projects to address them.	Implement basic staff training on asset management. Gather information on the organization's environmental impact.	Adopt and use circular procurement criteria and policies. Acquire new talent in digital transformation and/or sustainability as necessary. Develop structured training programs that enhance circular competencies and foster a proactive mindset.	Ensure optimal asset management is a strategic priority, with clear responsibility at C-level Put governance, processes, and management systems in place to reap the full benefits for economics, planet, and society Work together with key stakeholders in the value chain to optimize across the full chain