
CTI
TOOL

CTI TOOL

1000 HDMI cables (demo)

Company name	**CTI DEMO**
Business level	**Business unit**
Created by	**CTI DEMO**
Time frame	**31/12/2021 - 31/12/2022**

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6	STEP 7
Define the scope	Define the indicators	Collect data	Calculate	Analyze	Prioritize	Apply

Selected indicators

Close the loop

This set of indicators provides insights on your company's effectiveness in closing material loops.

- ✓ % % material circularity
- % water circularity
- ✓ % renewable energy

Optimize the loop

This set of indicators provides insights on resource-use efficiency.

- % critical inflow
- % recovery type
- % onsite water circulation

Value the loop

This set of indicators shows the added business value of your company's circular material flows.

- % circular material productivity
- % CTI revenue

Impact of the loop

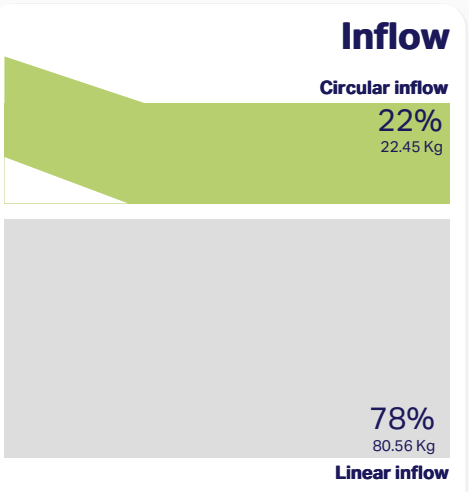
- ✓ GHG Impact

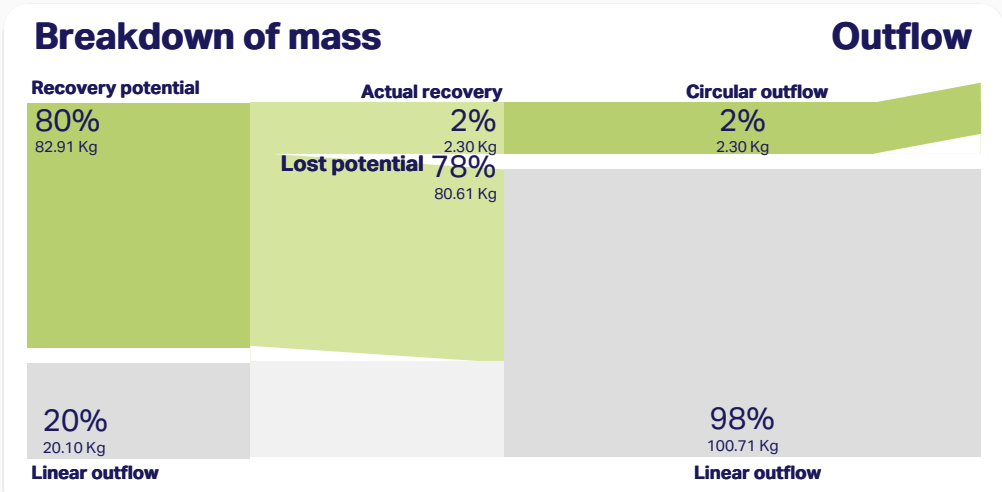
Excluded from the assessment

This assessment only focuses on flows that are relevant to demonstrate the new 'GHG Impact' indicator in the 'Impact the loop' module.

Overview of your circular performance

Close the loop





The diagram above illustrates the circular performance of the business level selected for this assessment. It includes total inflow and outflow of materials, with the percentage based on material weight.

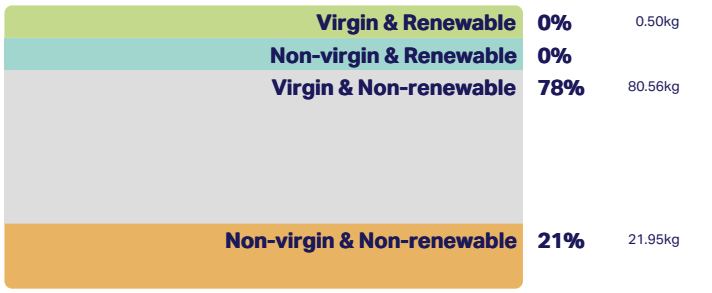
Inflow will be marked as circular if flows are non-virgin and/or renewable, and outflow will be marked as circular if it is both potentially recoverable and will be actually recovered.

Lost potential refers to the percentage of material that has recovery potential but is not currently being recovered, therefore losing recovery potential.

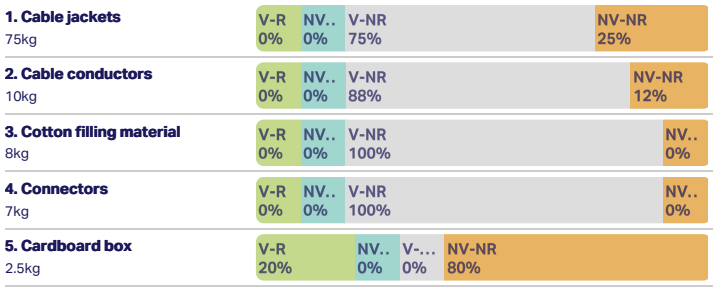
Close the loop: Inflow details

The diagrams below show the circular performance of the inflows of the business level analysed in this assessment. Flows are sorted based on the largest mass, most circular inflow, and most linear inflow. These breakdowns are useful to identify hotspots in your dataset and to determine where your focus areas are.

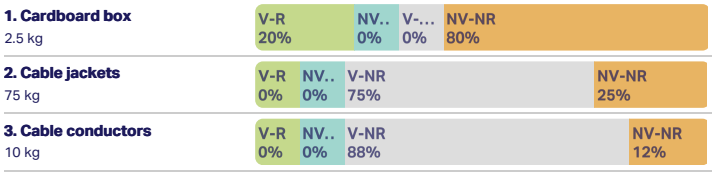
Breakdown of mass



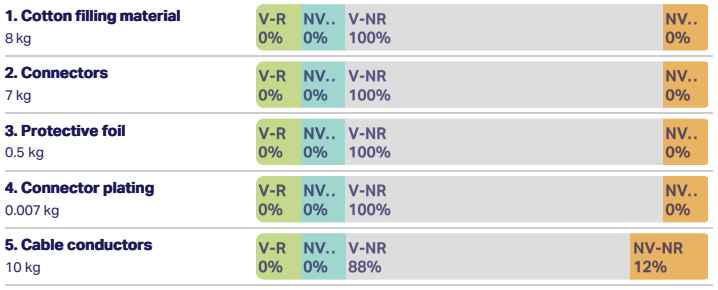
Largest inflow



Most circular inflow



Most linear inflow

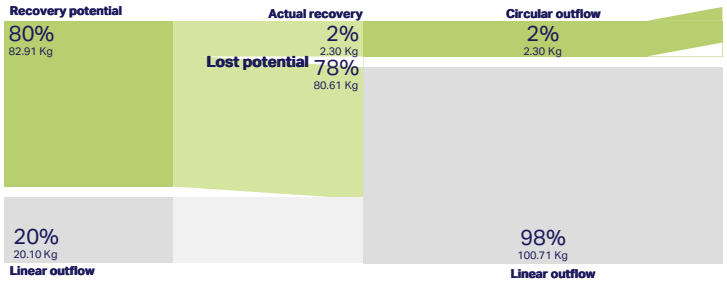


Close the loop: Outflow details

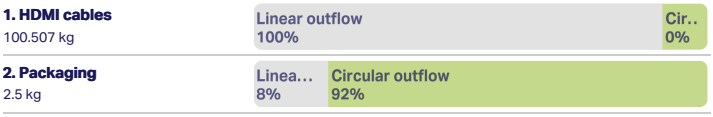
The diagrams below show the circular performance of the outflows of the business level analysed in this assessment. The percentage of recovery potential reflects your company's ability to design or treat its outflow to ensure materials can be technically recovered. The percentage of actual recovery reflects the amount of materials actually recovered.

Recovery is not the same as collection, because after collection materials can still end up in landfill or incineration. Thats why this'indicator requires actual data. The breakdown of mass visually shows the lost potential of the circular out flow due to partial actual recovery. Flows are sorted based on the largest mass, most circular outflow and most linear outflow.

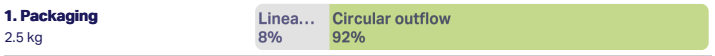
Breakdown of mass



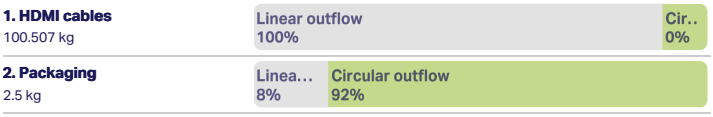
Largest outflow



Most circular outflow



Most linear outflow



Water

Water circularity

Water circularity refers to water use on local level and aims at lower freshwater demand. Circularity of water is determined through the % circular water inflow and % circular water outflow,

Energy

Renewable energy 19%

$$\frac{\text{Renewable energy}\ n}{\text{total energy}\ n} \times 100\%$$

Energy refers to the use of renewable energy for business operations. Your goal should be to reach 100% renewable energy use by decreasing overall energy consumption or substituting use of fossil fuels for renewable options.

Value the loop

Circular material productivity

This indicator expresses the monetary value per unit of mass. This absolute value is best used to compare performance over time. An increase in circular material productivity demonstrates a decoupling of financial growth from material use.

CTI revenue

Your company's CTI revenue is its revenue adjusted for the % circularity (weighted average of the % circular inflow and % circular outflow) of its product portfolio. The greater the CTI revenue, the better your company can generate revenues from its circular products/business. This metric also reflects decoupling as revenues increase from circular flows.

Impact of the loop

GHG Impact	471.93 kg CO_2-eq 80.6% CO_2-eq

If all your inflows would consist of 100% recycled materials, you could save **471.93** kg CO_2 equivalent of GHG emissions upstream in the value chain.

This amount is based on **91.7% of your inflow.**

The aim of assessing Greenhouse Gas (GHG) emission impact is to provide companies with a high-level indication of the GHG savings they may obtain by applying circular strategies. This information can be used to better understand carbon footprint benefits, evaluate trade-offs and help prioritize circular improvements.

STEP 5

Analysis: Inflow

This section shows the results from the CTI calculation performed in Step 4. This is the quantitative foundation for identifying, prioritizing and implementing circular initiatives, therefore crucial for your decision-making. This overview shows your selected flows and scenarios for improving circular performance. It also includes impact on your circular inflow performance, which can be achieved by adopting these inflow optimizations.

Inflow questions

The questions below will help you interpret the results of your data calculations.

Why is our circular inflow 22% ?

The cable covers are the most dominant inflow and contain 25% recycled content.

Is it higher or lower than expected?

It matches expectations.

What are the first impressions about where we should focus our improvement efforts on?

Based on mass of the flows, the biggest potential for improvement lies at the cable covers, but the gold plating of the connectors should not be ignored.

Why?

Because the difference in CO_2 impact for virgin and recycled gold is very big, meaning that a small mass still results in a high potential GHG impact saving.

Which inflows have limited options to improve due to external limitations?

The cable core is hard to improve.

Why?

Because of the electrical conductivity requirements, any inconsistencies in the material are unacceptable.

Inflow analysis

Name	Mass(Kg)	circular inflow	Impact on total circular inflow
Connector plating	0.01 kg	50 %	+0.00%
Cable jackets	75.00 kg	100 %	+54.61%

The circular inflow of
the business unit
1000 HDMI cables (demo)
will increase by

▲ 55%

if all changes above are implemented.

	Change	New value
% circular inflow	**54.61 %**	**76.41 %**
Critical materials		
Circular material productuvity		
CTI revenue		

STEP 5

Analysis: Outflow

The circular outflow of the business unit 1000 HDMI cables (demo) will increase by 11.71% if all changes above are implemented.

Outflow questions

The questions below will help you interpret the results of your data calculations.

Why is our circular outflow 2% ?

By far the most dominant outflow is the HDMI cables themselves. Due to their design, there is no disassembly and no actual recovery possible.

Is it higher or lower than expected?

This is lower than expected, the packaging has less influence than thought.

What are the first impressions about where we should focus our improvement efforts on?

The HDMI cables

Why?

Because the packaging has a negligible impact.

Which outflows have limited options to improve due to external limitions?

It may be difficult to improve the design of the cable to become more circular.

Why?

Because of the requirements on electrical shielding and usage characteristics.

Outflow analysis

Name	Mass(Kg)	Recovery potential	Actual recovery	Impact on total circular outflow
HDMI cables	100.51 kg	80 %	15 %	+11.71%

The circular outflow of
the business unit
1000 HDMI cables (demo)
will increase by

▲ 12%

if all changes above are implemented.

	Change	New value
% circular outflow	**11.71 %**	**13.94 %**
CTI revenue		

STEP 5

Analysis: Energy

Energy measurement includes all the energy carriers that flow into your company (including, but not limited to, gas, electricity and fuels). In line with WBCSD's approach, CTI allows companies to use existing policies and procedures, permitting the reuse of existing data sets.

In CTI, it's not possible for a company to achieve greater than 100% renewable energy. This way, even if your company generates more renewable energy onsite than it uses and sells it back to the grid (utility), it's necessary to cap the renewable energy indicator at 100%.

Energy analysis

Name	Amount	Improvement
Renewable energy	2345 kWh	+ 3579 kWh
Total energy	12345 kWh	12345 kWh

The renewable energy of
the business unit
1000 HDMI cables (demo)
will increase by

▲ 10.00%

if all changes above are implemented.

	Change	New value
% renewable energy	**10.00 %**	**28.99 %**

STEP 5

Analysis: Water

It's necessary to assess water circularity on a local level for a water catchment area or local watershed. The circularity of water is determined through the % circular water inflow and % circular water outflow, which in turn depends on local water conditions.

Water analysis

Name	Volume	Improvement
Total circular water inflow	m3	0 m3
Total circular water outflow	m3	0 m3
Total water withdrawal	m3	0 m3

The water circularity of
the business unit
1000 HDMI cables (demo)

0.00%

if all changes above are implemented.

	Change	New value
% total water circularity	**0.00 %**	**0.00 %**

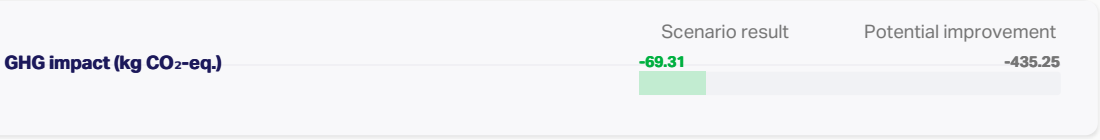
STEP 5

Analysis : Impact of the loop

It's necessary to assess water circularity on a local level for a water catchment area or local watershed. The circularity of water is determined through the % circular water inflow and % circular water outflow, which in turn depends on local water conditions.

GHG Impact Analysis

Name	Virgin content (%)	GHG impact (kg CO_2-eq.)
Connectors Aluminium	- 15.00 100.00%	-4.73 -31.52
Connector plating Gold	- 15.00 100.00%	-48.48 -323.24
Cable jackets HDPE	- 15.00 75.00%	-16.10 -80.49



The material-related upstream GHG emissions of the business unit **1000 HDMI cables (demo)** will decrease by

69.31 kg

if all changes above are implemented.

Appendix inflow materials

Name	Mass	Virgin Renewable(%)	Non-Virgin Renewable(%)	Virgin Non-renewable(%)	Non-virgin Non-renewable(%)
Cable conductors	10 kg	0	0	88	12
Cable jackets	75 kg	0	0	75	25
Cardboard box	2 kg	20	0	0	80
Connector plating	0 kg	0	0	100	0
Connectors	7 kg	0	0	100	0
Cotton filling material	8 kg	0	0	100	0
Protective foil	0 kg	0	0	100	0

Appendix outflow materials

Name	Mass	Recovery potential	Actual recovery
HDMI cables	100 kg	80	0
Packaging	2 kg	100	92