

7 Strategies of a Circular Supply Chain

TRANSITION MODEL



**CIRCULAR
SUPPLY CHAIN
NETWORK**

What is this Model?

Today's supply chains are linear

Our supply chains are designed and optimized to flow one way: towards the consumer. We take materials from the planet, we process it and make items, and we consume them. It flows in a line.

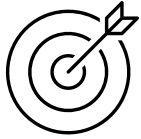
Tomorrow's supply chains are circular

What would happen if, instead of a line, materials moved in circles? After it's used by one supply chain, it's used by another? Materials offer more value than what we're using today. In a circular supply chain, every operation becomes a source of raw materials for another operation. Every material has value.

This transition model offers a bridge from linear to circular

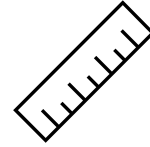
How in the world can we change the entire global economy from linear to circular? By changing the operations. Supply chains around the world can shift their operations from linear to circular with the transition model we've developed as a community.

Identify the Circles



Purpose

Find and define what materials/ resources move through our processes



Measure

in:out ratio of a given process. How much of what goes in, and comes out? The target is 100%



Applied

A supply chain identifies 1000kg of materials flowing in, but only 600kg going out. The in:out is 60%, and there is are 400kg of “fugitive value”

Happening today:

Value stream mapping: it’s a classic tool, and it shows us what flows in and what flows out.

Will happen tomorrow:

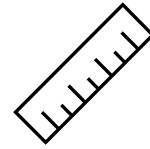
These value stream maps will begin to track “waste” as value. Use of Industry 4.0 technologies will allow near-real-time vision for better material tracking.

Intensify the Circles



Purpose

Increase the utilization of materials so they add the highest value possible



Measure

Utilization of a given item.
The target is 100%



Applied

A shipping pallet is used one week out of the month. The utilization is 25%.

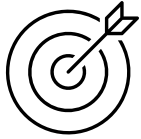
Happening today:

Outsourced services such as Flexe which allows multiple organizations to share warehouse space, leasing flexible pallet locations, so each pallet location is used as often as possible.

Will happen tomorrow:

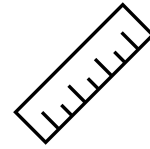
Outsourced services like Flexe will continue to increase to ensure highest utilization of supply chain assets

Narrow the Circles



Purpose

Reduce the number of resources needed: water, heat, gas, materials, consumables, etc.



Measure

Eliminating waste - often referred to as “zero waste.” The target is 100%



Applied

This is a dynamic measure. As more waste is identified in strategy 1, there will be a need to eliminate it. Set the goal at 100%

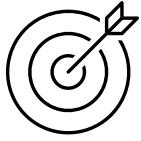
Happening today:

This strategy uses many Lean Management / Kaizen principles. See the 3 Mus of Kaizen!

Will happen tomorrow:

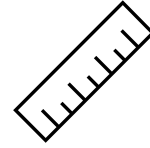
The three Mus will expand to include a new one: capturing the wasted materials / “fugitive value”

Predict the Circles



Purpose

Predict when, where, how, and what resources are ready for others across the supply chain network to use.



Measure

“Forecast accuracy,” The ability to predict availability of materials and resources. The target is 100%.



Applied

Forecast “waste” produced in a given operation is 100kg; actual “waste” produced is 200kg. Forecast accuracy is 50%.

Happening today:

We all use forecasting and forecast accuracy today!

Will happen tomorrow:

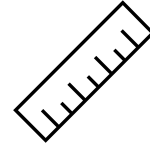
Forecasting waste / “secondary value streams” in addition to primary value streams. This will be in order to serve the new types of customers that will emerge to buy our “waste.”

Slow the Circles



Purpose

Elongating the life of products so they can be used at their highest value for as long as possible.



Measure

Version improvement: how long an item lasts compared to its previous version. The target is 100% longer.



Applied

The last conveyer belt lasted 5 years. The next one lasts 7.5 years. This is a version improvement of 50%.

Happening today:

MRO (maintenance, repair and operations) including the spare parts industry

Will happen tomorrow:

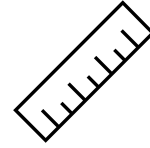
Broader use of Industry 4.0 technologies for prescriptive maintenance to get even more life from supply chain assets.

Close the Circles



Purpose

“Close” material use. Source only secondary or regenerative materials/ resources for all processes in the supply chain.



Measure

Secondary sourced. Amount of an operation’s inputs that come from a secondary source. The target is 100%.



Applied

Among the water, heat, materials, and consumables used in an operation, 20% comes from a secondary/ regenerative source.

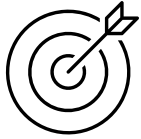
Happening today:

Recycling old tires into rubber pellets that can be used in future manufacturing processes, new roads, and even more tires. There are many secondary materials flowing through the economy!

Will happen tomorrow:

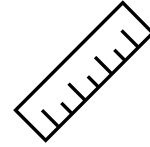
Use of technology to match material “uses” to needs, and introduce new types of substitutions previously not used – expanding the market and new possibilities

Capture the Circles



Purpose

Locate and transform secondary materials that are available and affordable for supply chain operations



Measure

Capacity: the secondary materials market captures only what is needed by demand. The target is 100%.



Applied

50kg of material is needed for an operation, but only 30kg of secondary material can be provided, the measurement is 60%.

Happening today:

Plastics taken from the ocean and other areas by companies like the Plastic Bank, creating the start of a secondary materials market by capturing “fugitive value.”

Will happen tomorrow:

Urban mining: mining landfill previously covered up in search of materials to circulate (think: WALL-E)