

# Closing the Loop with Circular Blu

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**CIRCULAR BLU**<sup>TM</sup>  
Redefining the Value of Waste

# Who We Are...

Circular Blu

# Circular Blu



Circular Blu is a consulting and manufacturing firm, dedicated to circular economy solutions to problematic waste streams.



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Circular Blu works with the healthcare and business sectors to divert materials from landfill and redefine the value of waste by creating sustainable circular economy products.



## Services

- Waste Stream Consulting and Programming
- Circular Economy Consulting



## Products

- Upcycled Products
- Downcycled Rigid Products
- Downcycled Flexible Products

## Partners

- Sustainable Solutions
- PLASTICS
- Work Without Limits
- Vizient





# Our Focus

## Hospital Plastics and Circular Products

New innovative processes created over industry best practices.



Professional consultancy services from industry experts.



Local and national solutions to address sterilization wrap recycling.

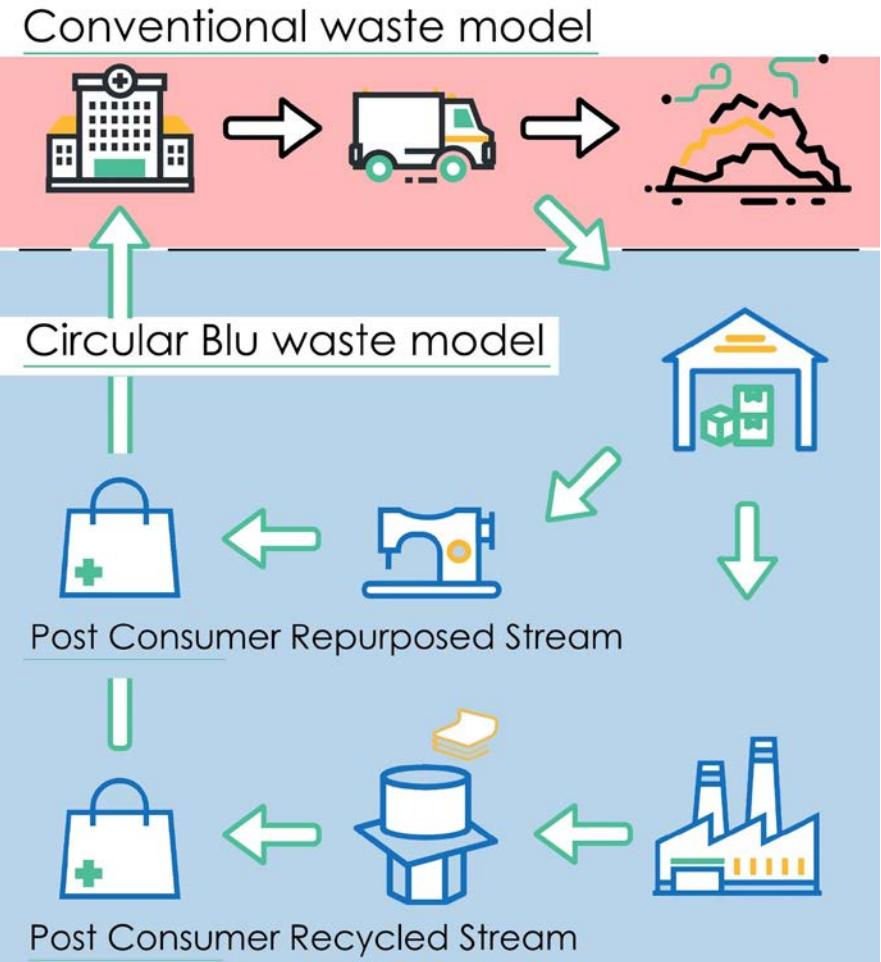


# Intro to Circular Products

How Circular Blu is Changing Healthcare Purchasing

# Closed Loop Process

- 1) Pick up material from healthcare facility
- 2) Divert material from landfill
- 3) Aggregate supply
- 4) Transport material to manufacturing/processing facilities
- 5) Convert material into recycled bags
- 6) Sell circular products back to healthcare facility.



# Making Circular Products from Waste



# Healthier Products

- Convert single use bags
- Working to convert other unhealthy products
- 100% recyclable drapes with On the Right Track
- Create circular PP repurposing programs



# EPP and Environmental Attributes

## EPP Attributes:

- 100% PCR Content
- 100% Recyclable Packaging
- 100% Recyclable Product
- Designed for Reuse
- Does not contain any harmful chemicals

## Environmental Attributes

- 90% Reduction in Energy Consumption
- 77% Reduction in Contribution to Global Warming
- 62% Reduction in Smog Creation
- 51% Reduction in Water Use
- 44% Reduction in Eutrophication

# The World's Most Sustainable Tote

Made from upcycled sterilization wrap collected from participating hospitals



# Products made from



Made from 80% blue wrap



45 gallon can w/wheels & Flip lid  
25 1/4 L x 21 1/4 W x 31 1/4 H - 9.75 lbs.



32 gallon Garbage Can  
22" Diameter x 28" H - 7 lbs.



28 quart Recycling Bin  
14 1/2 D x 10 1/2 W x 15 1/2 H - 2 lbs.



Fractured Bed pan



Stackable Bed pan



Wash Basin



Pontoon Bed pan



Disposable Surgical Scrubs



Nonwoven Fabric made from 100% recycled blue wrap

# Case 1: Dartmouth-Hitchcock Closes the Loop



## Dartmouth-Hitchcock Medical Center Wrap Collection Program



### Diverted close to 3 tons of wrap

Circular Blu works with DHMC to collect sterilization wrap. Material is sorted into pieces big enough to make tote bags and the rest is downcycled.



### Bags made from DHMC wrap

The bags you are holding are made from DHMC's wrap. Circular Blu has collected enough wrap to make over 5,000 bags.



### Closing the loop

DHMC has committed to buying back products made from their wrap waste through Medline.

# Case 2: Valley Hospital Replaces Single Use Bags



CEO Audrey Meyers Converts Valley Health System's Disposable Patient Experience Bags to Reusable Circular Economy Bags



## 25k Reusable Patient Experience Bags

Made from Surplus Wrap diverted from landfill. Saved 21,540 kWh, over 16,000 of CO<sub>2</sub>, and 7,500 lbs of landfill space..



## Bags Communicate Sustainability

A survey was given to evaluate the effectiveness of these bags communicating sustainability initiatives. These bags received an average of 4 out of 5 in their effectiveness.



## More Hospitals Interested in Converting



There has been a sharp increase in demand for reusable alternatives to patient belonging bags.

# The Valley Hospital Sustainability Questionnaire

1 Year later, employees at The Valley were polled on two questions:

**Q1: On a scale 1-5, how effective are The Valley Hospital's new Patient Experience Bags at communicating sustainability?**

**Result: 4/5**

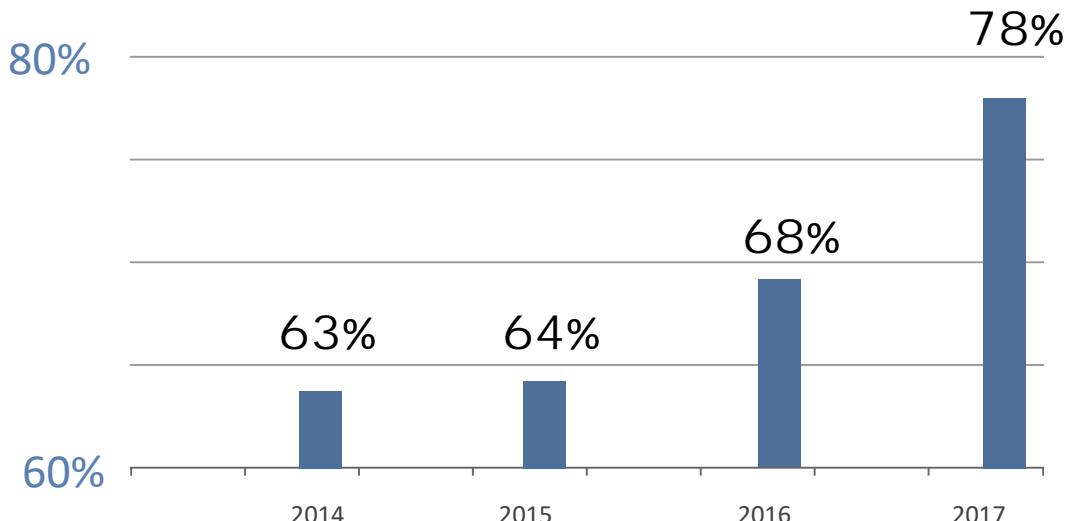
**Q2: On a scale of 1-5, how well is The Valley Hospital communicating its sustainability efforts and initiatives?**

**Result: 4/5**



# EPP Policy Adoption

## Year-Over-Year Comparison



## Analysis

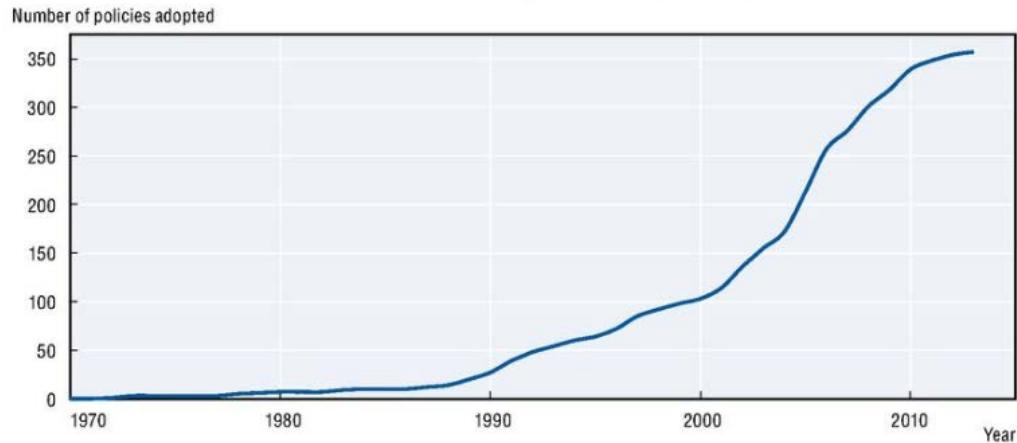
- 1 Healthcare leveraging spending power to increase sustainable product availability
- 2 Suppliers and GPOs need to respond with cost competitive EPP products
- 3 Sustainability and supply chain connections are being integrated
- 4 Healthcare leadership is driving change

*Source: Practice Greenhealth*

# Extended Producer Responsibility (EPR)

EPR is a practice and policy approach in which producers are made responsible for collecting and processing their manufactured products upon the end of their lifetime.

Figure 1.2. Cumulative EPR policy adoption globally, 1970-2015



- Many states in the US are passing EPR regulations.
- Nearly half of U.S. states now have some form of EPR policy.
- **Creating sterilization wrap recycling programs will help.**

Source: OECD (2013), *What have we learned about extended producer responsibility in the past decade? – A survey of the recent EPR economic literature*, Paris

# Healthcare Circularity

Issues, Considerations and Solutions for Wrap Recycling in  
Healthcare



# Hospitals Need Medical Plastics Recycling



## Waste Disposal costs are increasing

MSW Tipping fees projected to increase greatly. This will increase sterilization wrap disposal expenses for hospitals without recycling programs.



## Landfills are reaching capacity

Landfills will reach capacity in less than 20 years. China banning import of recyclables will speed this up.



## Tariffs are affecting domestic product creation

Imported goods are becoming more expensive, allowing more price competitiveness for domestic products.



## Interest in closed loop products is increasing

Plastic waste is in national spotlight. Consumers are demanding sustainable products and products with PCR content.



# Landfill Capacities and Increased Fees

Table 1: MSW tipping fees in 2017 with Forecast to 2021

Region	2017	2018*	2019*	2020*	2021*	AAGR	5-Year total increase
Northeast	\$74.75	\$75.92	\$77.10	\$78.25	\$79.28	1.48%	6.06%
Southeast	\$40.36	\$40.87	\$41.37	\$41.85	\$42.32	1.19%	4.86%
Midwest	\$49.57	\$50.63	\$51.59	\$52.55	\$53.42	1.89%	7.77%
Western	\$35.69	\$36.58	\$37.47	\$38.27	\$39.06	2.28%	9.45%
Pacific	\$59.18	\$60.84	\$62.50	\$64.07	\$65.54	2.58%	10.73%
Entire US	\$50.30	\$51.19	\$52.06	\$52.84	\$53.53	1.57%	6.43%

Table 2: Remaining Landfill Capacity in 2021 and Annual Rate of Capacity Loss

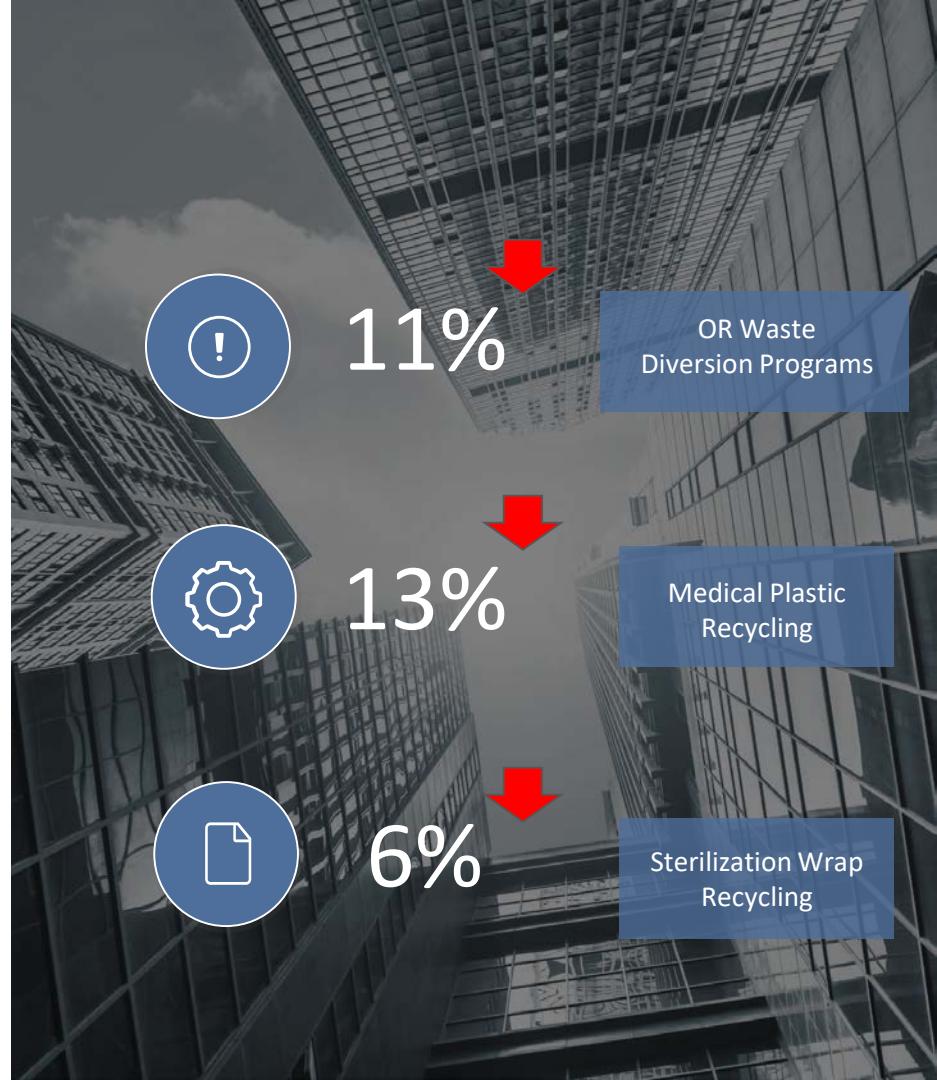
Region	Remaining Capacity (years)	Annual rate of loss
Northeast	8	-5.0%
Southeast	14	-2.5%
Midwest	11	-4.0%
Western	22	-1.5%
Pacific	17	-1.9%
USA	15	-2.6%

\*\*These pricing forecasts do not incorporate China's material ban, which will accelerate price increase and capacity loss dramatically.\*\*

# Healthcare Recycling

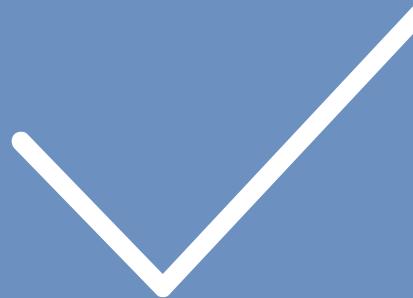
## Picking up the slack

- Issues with the recycling market are being seen throughout the sector.
- Waste haulers will not take sterilization wrap without a market to sell it.
- Little to no transparency with downstream supply chain.
- Sterilization wrap is undesirable due to lightweight and voluminous nature.
- Hospitals desire an end-of-life solution for sterilization wrap.





From Problem



To Solution

# Our Comprehensive Solution

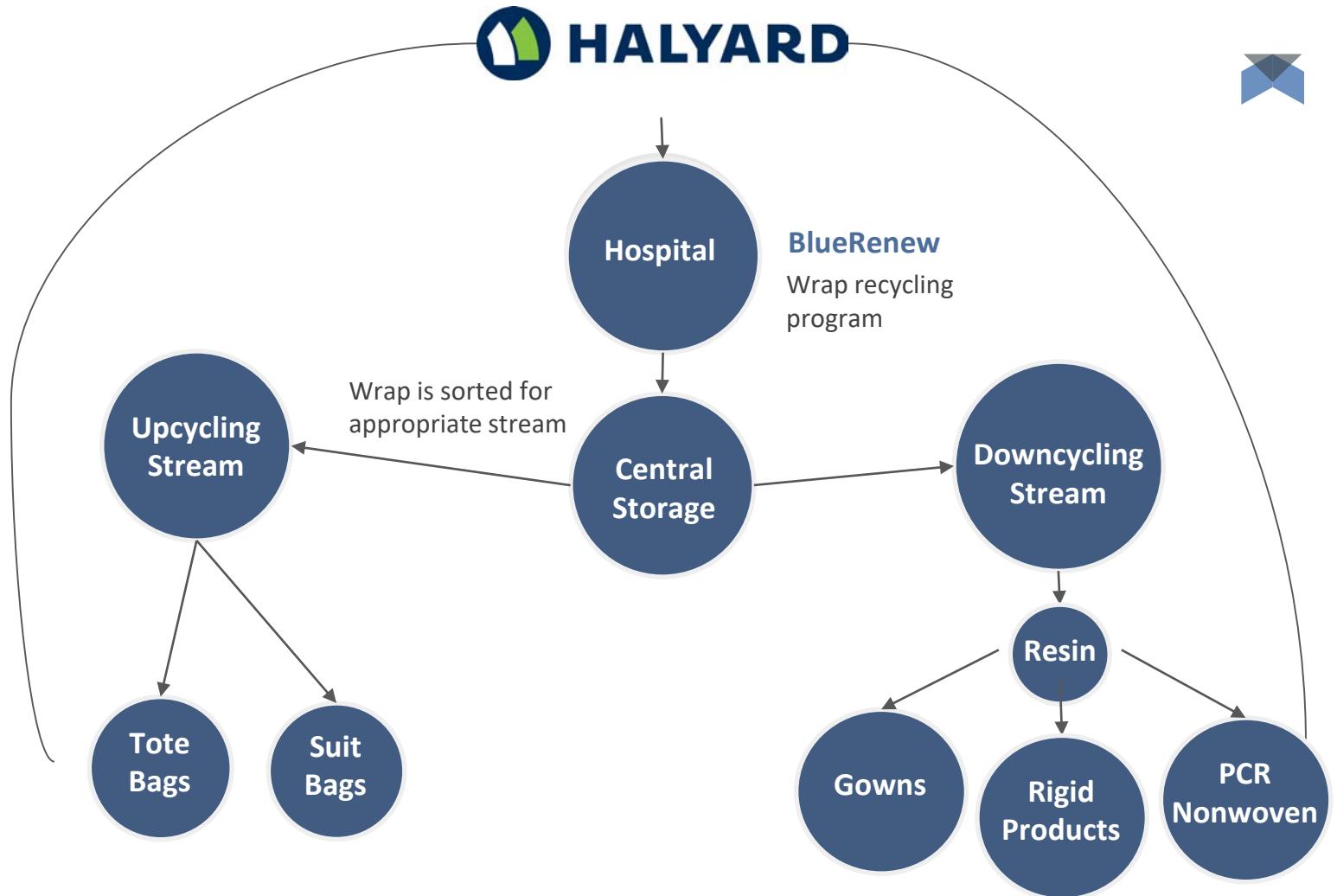
Providing recycling and repurposing solutions to create  
circular products made from sterilization wrap

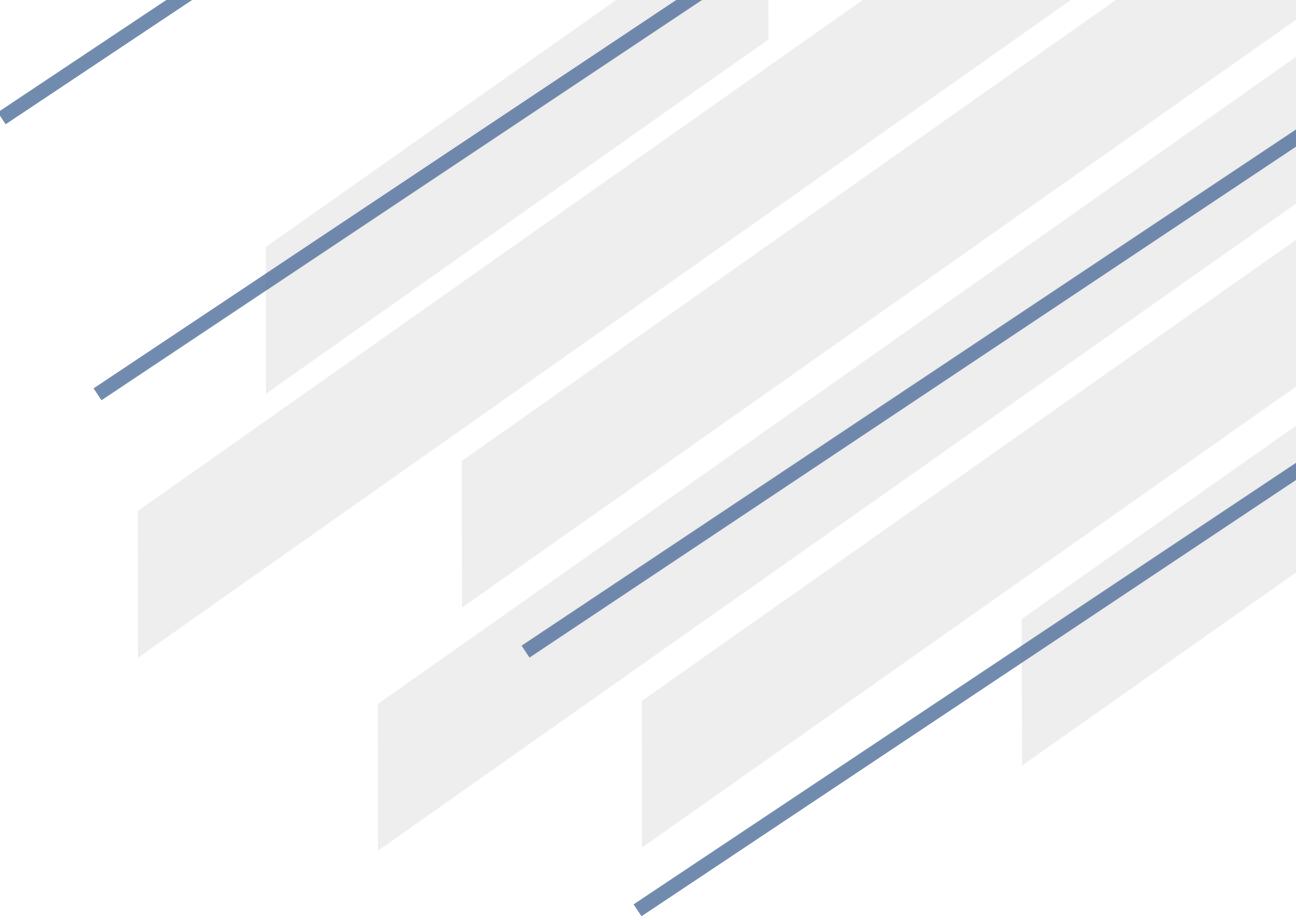


# Circular Program Flow



## HALYARD





Thank You