



An AI-based Platform & Services to Industrialize Circular Economy in the Built Environment



LEADING CIRCULAR ECONOMY IN THE BUILT ENVIRONMENT

Locations

FRANCE

- Paris (HQ) ★
- Nantes
- Marseille
- Strasbourg



UNITED KINGDOM

- London (Rep)

SPAIN

- Barcelona (Rep)



JAPAN

- Tokyo (Rep)

Singapore

- 61H Paya Lebar Crescent



— Global Footprint —
+5M
SQM MANAGED

OUR SKILLS & SERVICES

Circular Expertise since 2007

- Pioneering sustainable solutions with almost 20 years of hands-on circular economy experience

AI-Powered Circular Resource Management Platform since 2019

- Harnessing smart technology to maximize resource efficiency and close the loop across industries

White label Urban Mining Initiatives since 2023

- Delivering turnkey solutions that transform waste into high-value resources for your organization/city

Certified Cradle to Cradle® Assessor since 2011

- Offering trusted, expert assessments that ensure products meet the highest standards of sustainability



A FRAMEWORK FOR CITY WIDE REUSE

Singapore Urban Mining

**WHY AN URBAN MINING INITIATIVE
IN SINGAPORE ?**

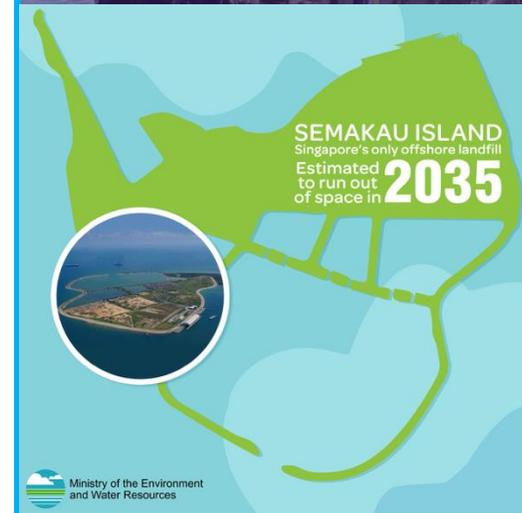


THE PROBLEM

- Construction industry consumes 60% of all raw materials
- 98% end in low value “end of life” applications
- Built environment contributes to 37% of the world’s emissions and 20% of the Singapore’s emissions (of which 40% of embodied carbon)
- Semakau island of waste management will run out of space in 2035



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CHALLENGES TO REUSE

- No transparency on supply of reclaimed products
- Unstructured and dispersed information
- Existing systems emphasize spot trading between strangers
- Unstable and fragmented demand and supply
- Inefficient and unprofitable artisanal approach

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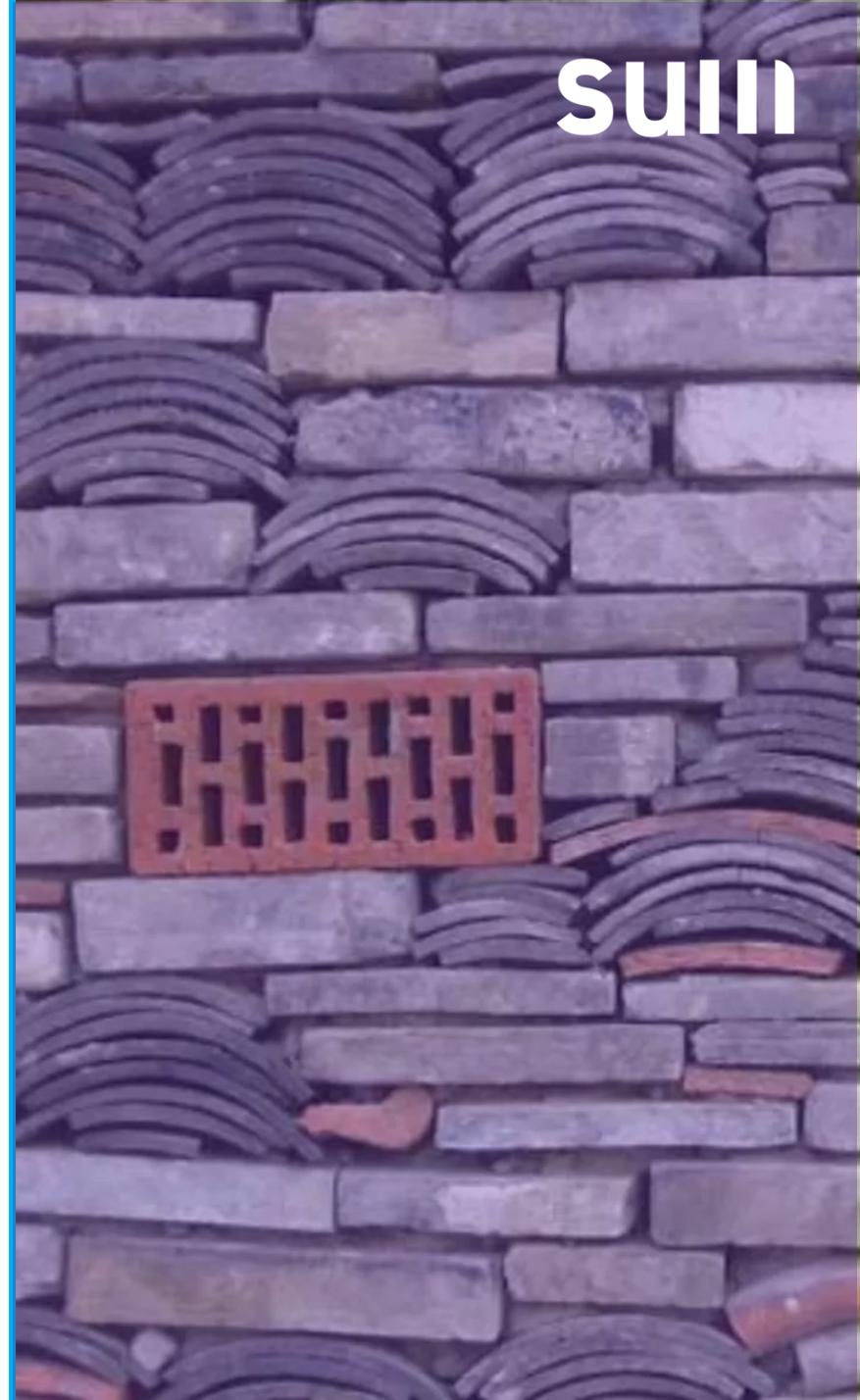
SINGAPORE URBAN MINING

- The SUM Singapore Urban Mining is seeking to create an institutional framework where public and private sector can share information, as well as reduce the total costs of participation in reuse
- Stakeholders share experience to drive best practice, standards and approaches to barriers and challenges
- Provide evidence and insights to drive policy, giving policymakers effective tools to support with targeted interventions.
- Turn information into action and action into policy



THE SUM OBJECTIVES

- Collaborate with Singapore stakeholders to digitize building audits to create transparency
- Use Digital Product Passports to capture and structure product & material data within a common template
- Bring key members of the industry into a forum that builds trust, manages complexity and enables scale
- Create critical mass by using key members to anchor the market while enabling interoperability with other marketplaces
- Automatically generate key impact Indicators (waste and CO2 avoided, water preserved, economic balance)
- Use an AI-based collaborative (white label) platform to maximize reuse



URBAN MINING OVERSEAS

powered by Upcyclea

Urban mining initiatives already active overseas



PIRÉE: French Urban Mining

- Since 2023
- Sponsors: Social Landlords Association, ULI France



Expo2025 : Osaka Urban Mining (temporary)

- April-October 2025
- Sponsor: Obayashi



GREATER
LONDON
AUTHORITY



Romulus: London Urban Mining

- Since 2024
- Sponsors: London boroughs, GLA



A photograph of a construction site at sunset. Several large tower cranes are silhouetted against a sky filled with orange, yellow, and blue clouds. The sun is low on the horizon, creating a bright glow. The foreground shows the dark silhouettes of buildings and the cranes' structures.

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PRE-DEMOLITION AUDIT

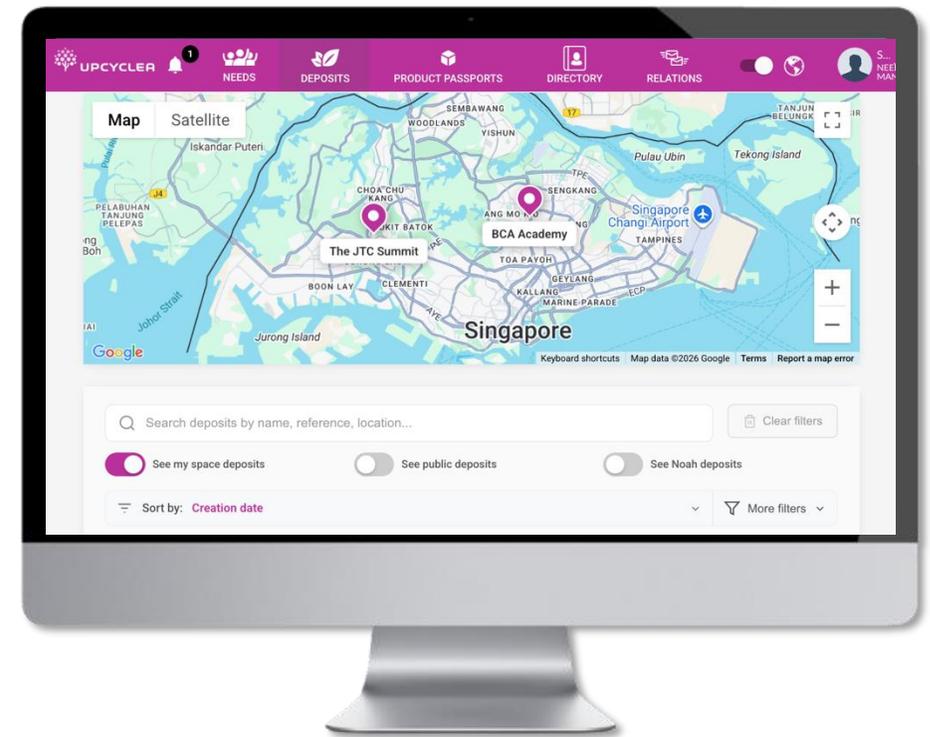
CONSOLIDATING DATA

All starts from reliable data → **Pre-Demolition Audit** for Reuse



Pre-Demolition Audit

Deposits of Reusable Products & Materials



Characterization & Digitalization in the SUM Platform

PDA FORMAT

Harmonization, Digitalization, Reliability

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Product

Quantities, Levels of wear and demountability, Reuse potentials, etc.

Location, Availability, Pictures, etc.

Passport Id

A	C	D	F	G	H	I	J	Q	R	S	T	U	W	X	Y
Product	Manufacturer	Reference / Description	Dimensions	Digital Product Passport ID	Passport Typology	Quantities	Unit	Deposit origin	Wear condition	Demountability	Reuse potential	Site	Auditor Comments	Availability Date	Image URL
Zinc cladding	n/a	Rainscreen cladding		63b69a4316f81	GENERIC	96	m2	4 - From site (removal)	3 - used	2 - easily separable	0 - NO	24		22/01/2025	https://drive.google.com/file/d/1ZDNRx-jRih2eZi-DDcWNQuFnWNSqwiBe/view?usp=drive-link
Aluminium ceiling tiles Type 1	n/a	Perforated acoustic ceiling tiles		608ac1510146f	MANUFACTURER	3423	m2	4 - From site (removal)	3 - used	2 - easily separable	1 - YES	22		23/01/2025	https://drive.google.com/file/d/1ZDNRx-jRih2eZi-DDcWNQuFnWNSqwiBe/view?usp=drive-link
Aluminium ceiling tiles Type 2	n/a	Perforated acoustic ceiling tiles		608ac1510146f	GENERIC	1960	m2	4 - From site (removal)	3 - used	2 - easily separable	1 - YES	24		24/01/2025	https://drive.google.com/file/d/1ZDNRx-jRih2eZi-DDcWNQuFnWNSqwiBe/view?usp=drive-link
Aluminium shelving units	n/a	Storage		64a3de1223f87	GENERIC	4	piece	4 - From site (removal)	3 - used	2 - easily separable	1 - YES	22		25/01/2025	https://drive.google.com/file/d/1ZDNRx-jRih2eZi-DDcWNQuFnWNSqwiBe/view?usp=drive-link
Asphalt roof	n/a	Asphalt roofing		6076d6cba74f1	GENERIC	125	m2	4 - From site (removal)	3 - used	3 - difficult to separate	0 - NO	24		26/01/2025	https://drive.google.com/file/d/1ZDNRx-jRih2eZi-DDcWNQuFnWNSqwiBe/view?usp=drive-link
Basement Retaining Walls	n/a	RC Wall		64632e7680f3c	GENERIC	235	m3	4 - From site (removal)	3 - used	0 - not relevant	1 - YES	22		27/01/2025	https://drive.google.com/file/d/1ZDNRx-jRih2eZi-DDcWNQuFnWNSqwiBe/view?usp=drive-link
Blockwork Walls 1	n/a	Concrete - Structural elements, blockwork		6467633bc48a1	GENERIC	98	m3	4 - From site (removal)	3 - used	4 - inseparable	0 - NO	22		28/01/2025	https://drive.google.com/file/d/1ZDNRx-jRih2eZi-DDcWNQuFnWNSqwiBe/view?usp=drive-link
Blockwork Walls 1	n/a	Concrete - Structural elements, blockwork		6467633bc48a1	GENERIC	39.2	m3	4 - From site (removal)	3 - used	4 - inseparable	0 - NO	24		29/01/2025	https://drive.google.com/file/d/1ZDNRx-jRih2eZi-DDcWNQuFnWNSqwiBe/view?usp=drive-link
Blockwork Walls 2-6	n/a	Concrete - Structural elements, blockwork		6467633bc48a1	GENERIC	360.15	m3	4 - From site (removal)	3 - used	4 - inseparable	0 - NO	22		30/01/2025	https://drive.google.com/file/d/1ZDNRx-jRih2eZi-DDcWNQuFnWNSqwiBe/view?usp=drive-link
Blockwork Walls 2-6	n/a	Concrete - Structural elements, blockwork		6467633bc48a2	GENERIC	91.6545	m3	4 - From site (removal)	3 - used	4 - inseparable	0 - NO	24		31/01/2025	https://drive.google.com/file/d/1ZDNRx-jRih2eZi-DDcWNQuFnWNSqwiBe/view?usp=drive-link

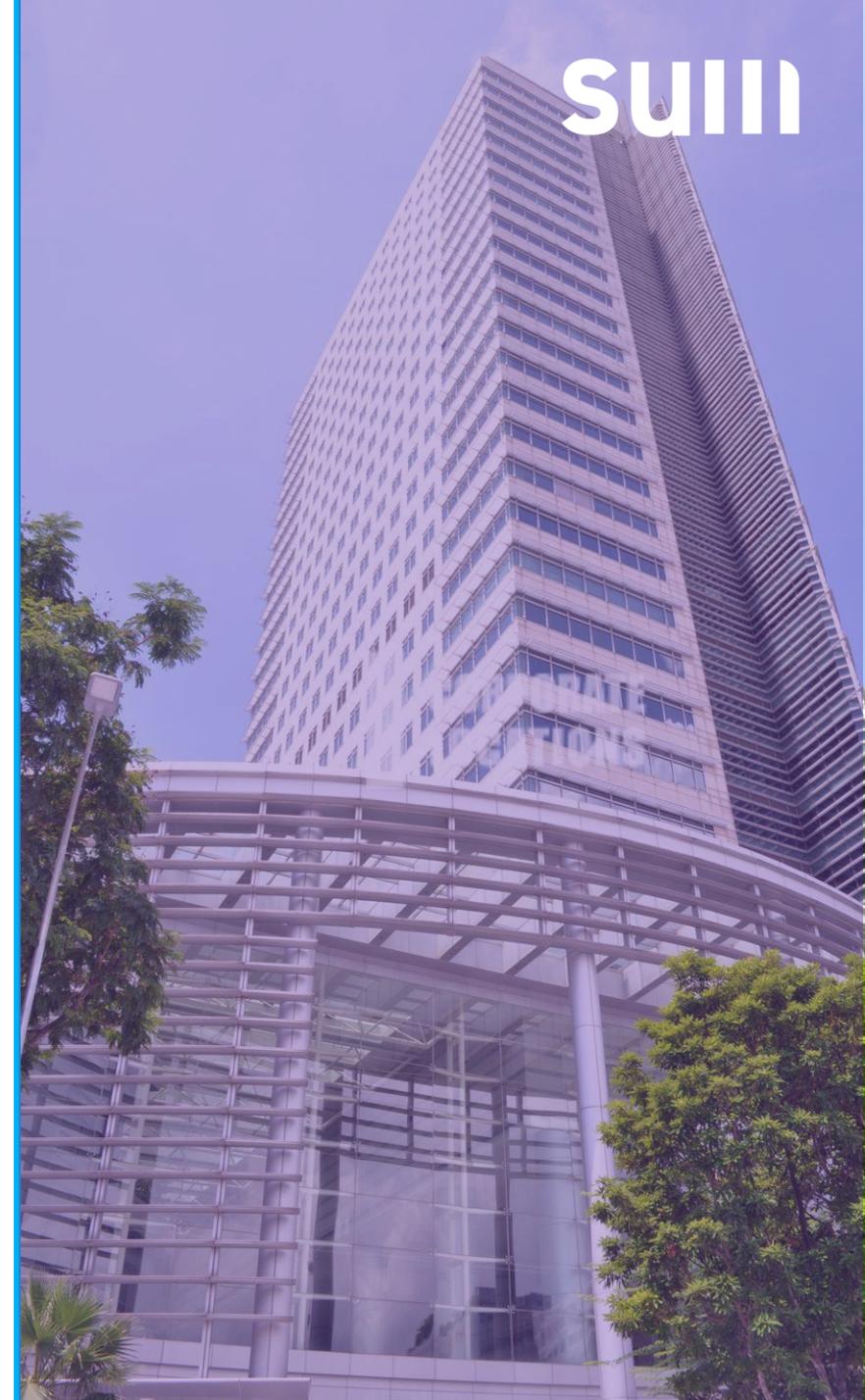


REUSABLE DEPOSITS

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Imported deposits are from PDAs

The screenshot displays the UPCYCLER app interface. At the top, there is a navigation bar with icons for 'NEEDS', 'DEPOSITS', 'PRODUCT PASSPORTS', 'DIRECTORY', and 'RELATIONS'. Below this is a map of Singapore with a location pin for 'The JTC Summit' at 8 Jurong Town Hall Rd, Singapore 609434. A pop-up window shows the location name and address, and a 'DEPOSITS' section indicates there are 108 deposits. Below the map, there is a search bar with the text 'glass' and a 'Clear filters' button. There are three toggle switches for 'See my space deposits', 'See public deposits', and 'See Noah deposits'. A 'Sort by: Creation date' dropdown menu is also visible. The main content area shows a list of deposits, with the first item being 'Fire resistant glass' at 'The JTC Summit, ...'. The item details include: QUANTITY: 0 BOOKED / 300 ...; SITE: The JTC Summit, ...; CONDITION: As new (New product); PRODUCT PASSPORT: Fire-resistant gla... (Construction products and materials). There are 'View' and 'Create need' buttons for this item.



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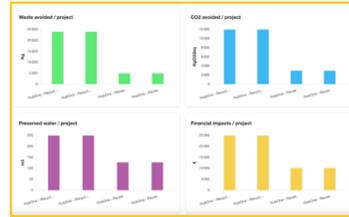
GLOBAL PROCESS



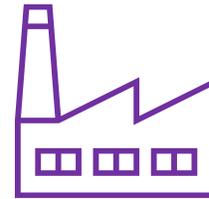
AI-BASED REUSE PROCESS

ESG Outflow Indicators

Local marketplaces



Manufacturers



Deposits



Needs

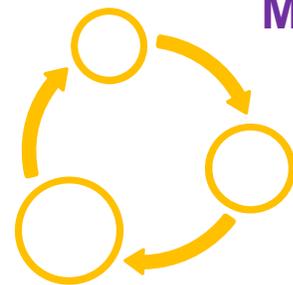
AI-based Matching

Industry
(Contractors,
Architects, Consultants)



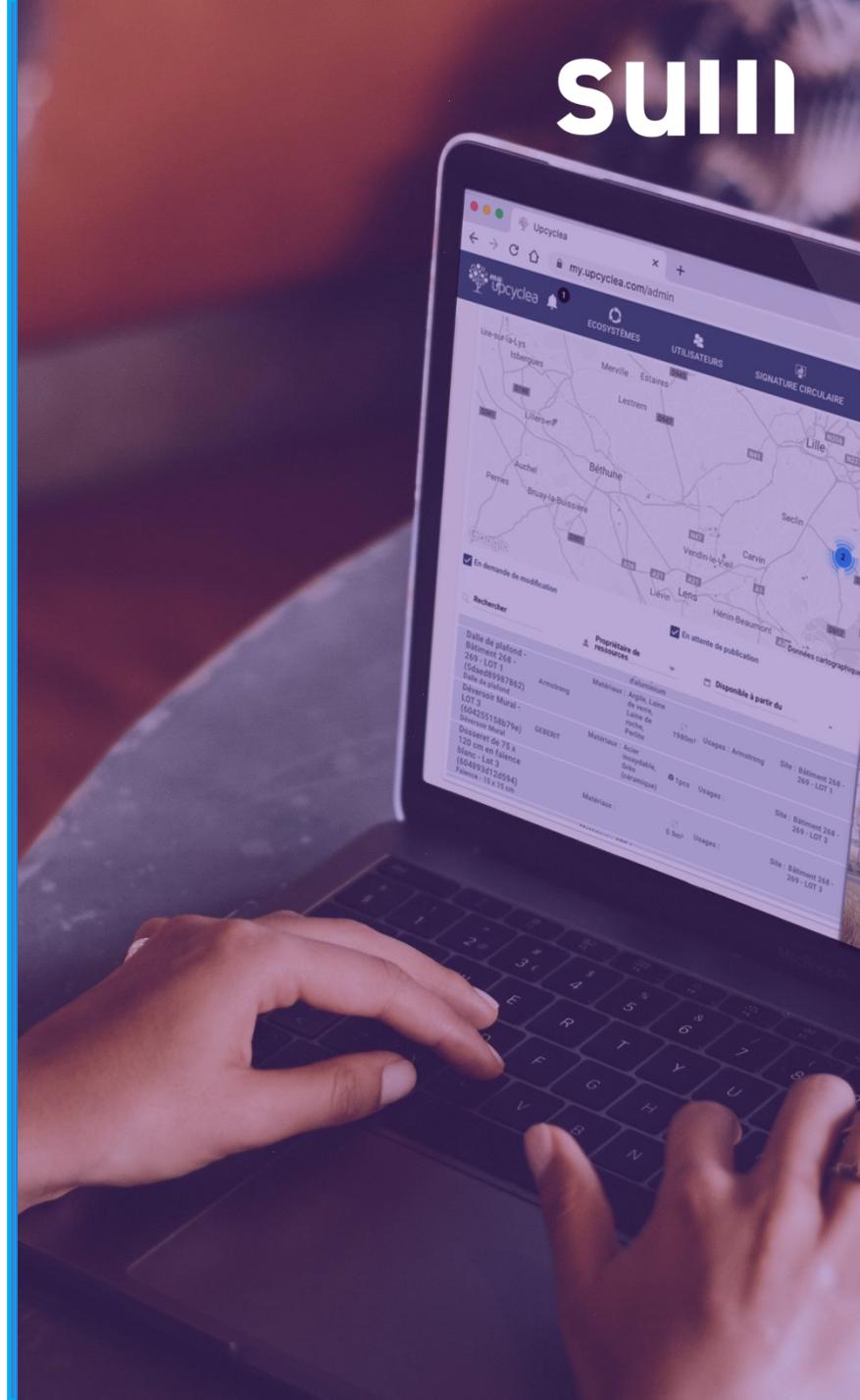
PDA's

Asset owners, etc.



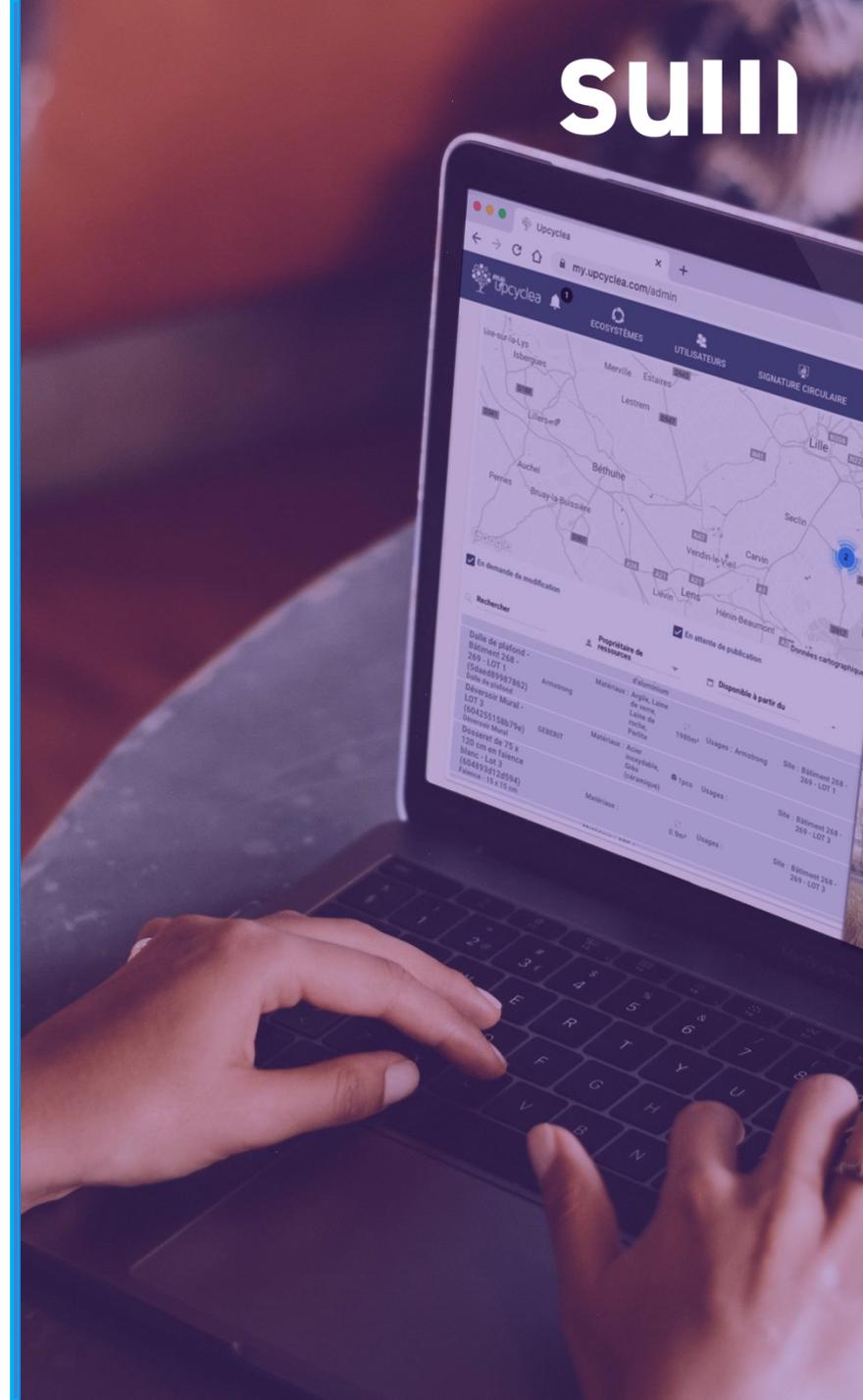
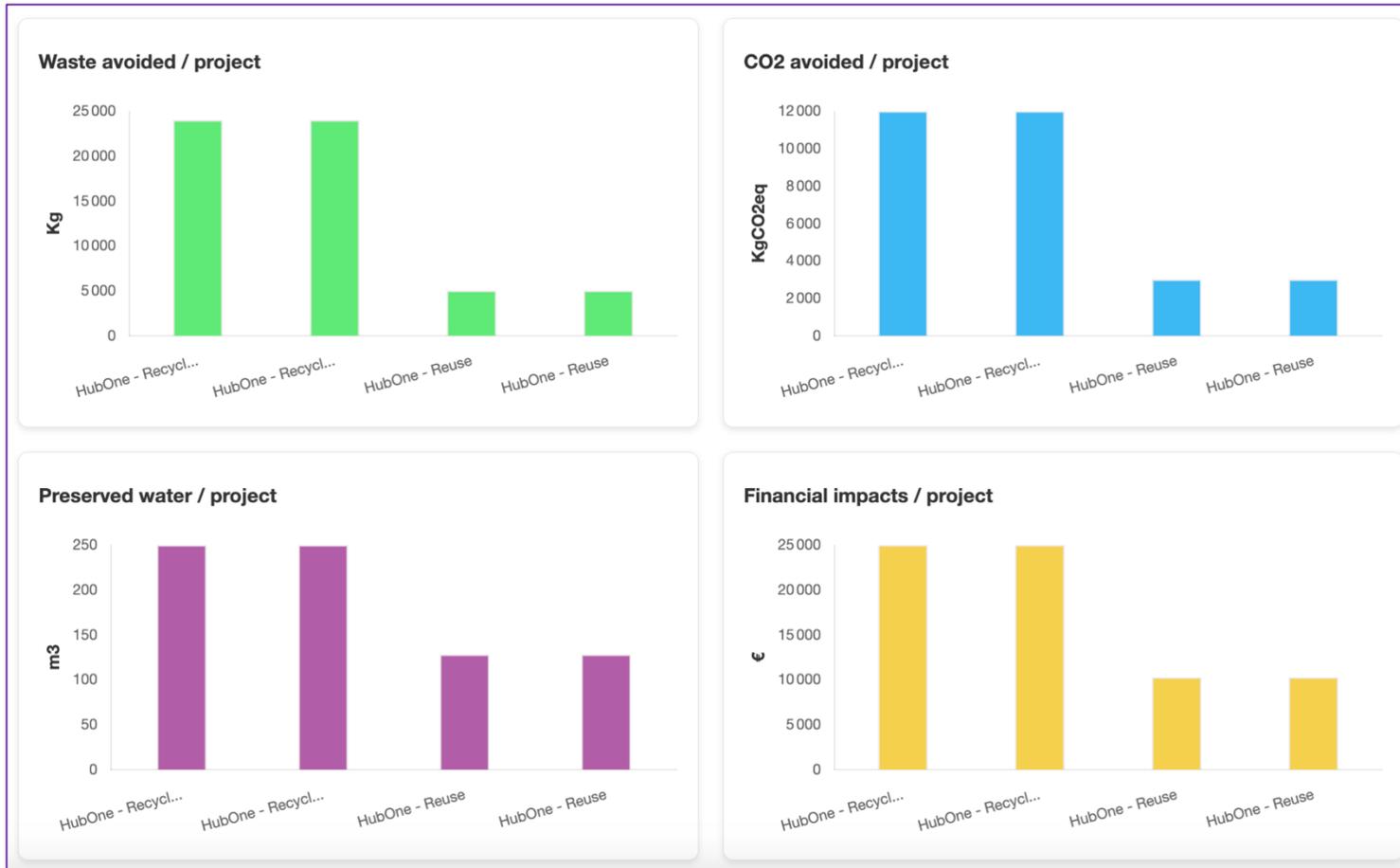
Reuse Ecosystems
between offer and demand

SUM



REAL-TIME OUTFLOW INDICATORS

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THE SUM PLATFORM

- White label **Upcyclea** Platform
- Bulk import of PDAs
- AI-based Deposits x Needs matching
- Internal Messaging
- Reuse ecosystems
- Real time ESG inflow and outflow indicators
- Trainings
- Processes

The screenshot displays the Upcyclea platform interface. At the top, there is a navigation bar with the Upcyclea logo, a notification bell with a '3' badge, and three main tabs: ECOSYSTEMS, MATCHES, and DATA. Below the navigation bar, there are filter options: 'Max distance' set to 200, 'Match status' with a dropdown arrow, and 'Sort needs by' set to 'Creation date'. The main content area is a table with columns for 'Need / Description', 'Quantity / Date', and 'Company'. The first row shows a 'Steel' need for 'Fire-resistant glass' with an unknown quantity and date, from 'OBAYASHI S' at '35 Selegie Rd'. Below this, a 'Targeted need' section shows a 'Fire resistant glass' deposit of 300 m², 12 km away, with a 'Fire-resistant glass' deposit of 'As new' availability. The second row shows a 'Fire resistant glass' need for 800 m² for 11-06-2025 (Flexible) from 'BCA' at '52 Jurong Gate'. Below this, another 'Targeted need' section shows a 'Steel' deposit of 561 m², 12 km away, with a 'Sheet / Steel cover' deposit of 'Slightly used' availability. The table also includes a note: '3 deposits might fit the need'.

Need / Description	Quantity / Date	Company
 Steel Fire-resistant glass	Unknown m² for Unknown	OBAYASHI S 35 Selegie Rd,
✓  Targeted need		
Name / Description	Quantity / State	Address / A
 Fire resistant glass Fire-resistant glass	300 m² As new	12 km awa Availability:
 Fire resistant glass Fire-resistant glass	800 m² for 11-06-2025 (Flexible)	BCA 52 Jurong Gate
>  Targeted need		
 Steel Tôle / Couverture en acier	Unknown m² for Unknown	LH METAL R 35 Selegie Rd,
✓ 3 deposits might fit the need		
Name / Description	Quantity / State	Address / A
 Steel cover Sheet / Steel cover	561 m² Slightly used	12 km awa Availability:

THE RESOURCE MANAGER

- The Resource manager is a key part of the system, a 'supply chain orchestrator'
- Shared between all stakeholders
- Facilitate demand / supply matching and support logistics
- Map the logistics and reverse supply chains to quantify and report material flows
- Train members and facilitate SUM monthly forums

SUM





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ORGANIZATION

SUM GOVERNANCE

Steering Committee
(Strategy & Resource Management)

Government Agencies

Academic Institutions

Upcyclea

Industry Sector Representatives

SUM Platform

Associations

Manufacturers

Contractors
(Architects, Consultants, etc.)

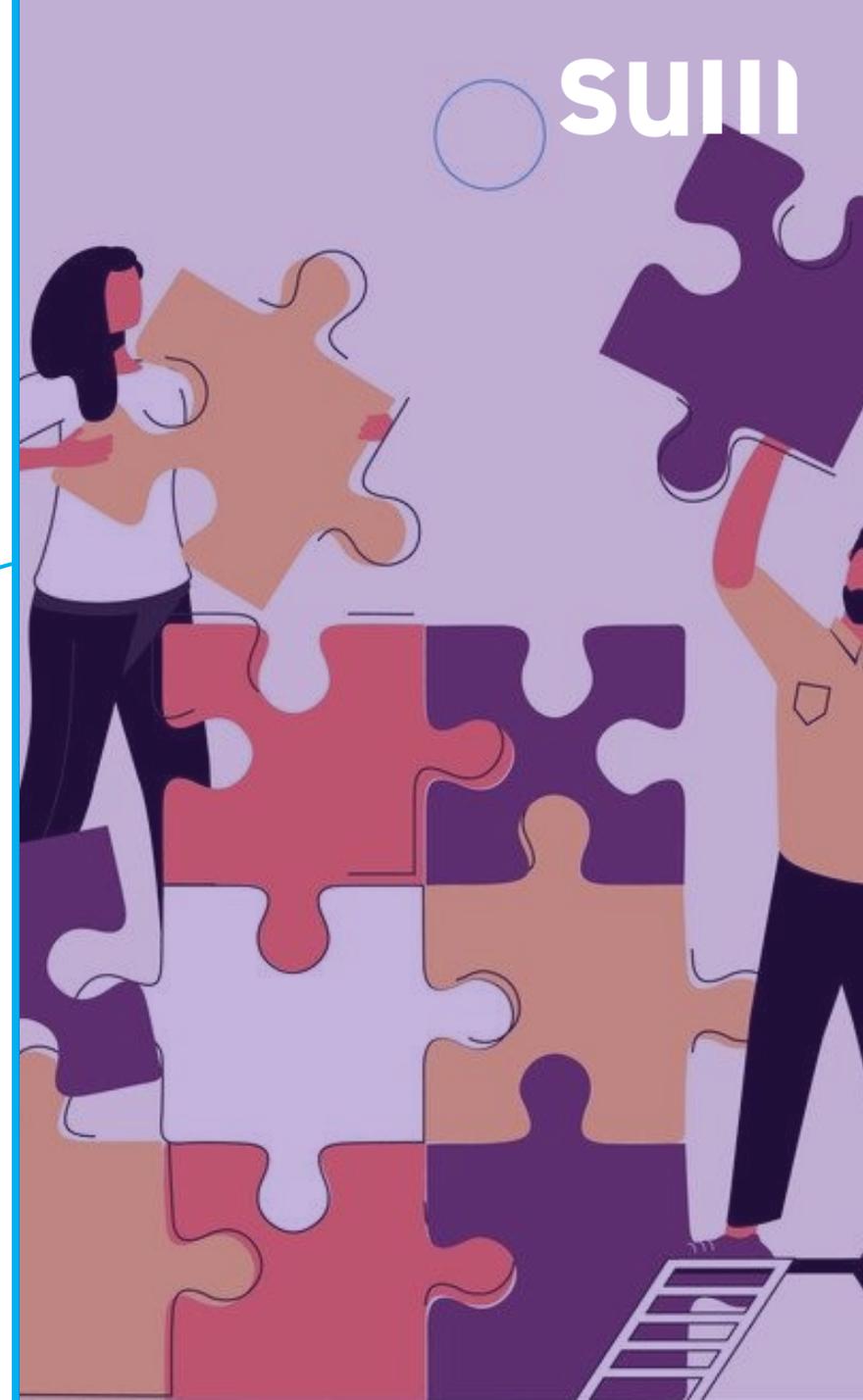
Asset owners

Developers

Builders

Industry
(needs)

Deposit Owners
(deposits)



SUM GOVERNANCE



Industry
(needs)

Associations
Manufacturers

Contractors
(Architects,
Consultants, etc.)

Deposit
Owners
(deposits)

Steering Committee
(Strategy &
Resource Management)



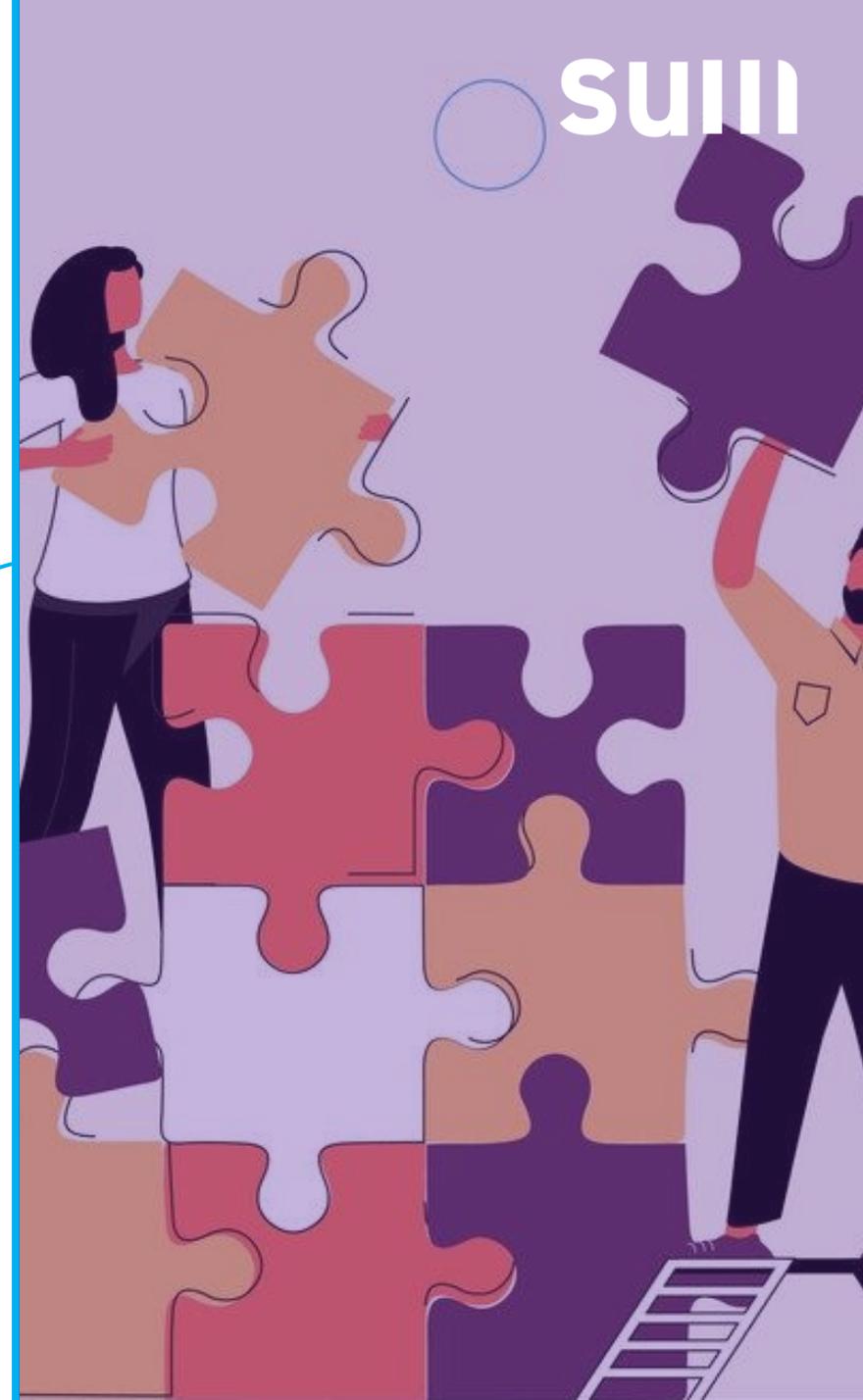
- OBAYASHI Singapore
- SINGAPORE GREEN BUILDING COUNCIL
- DPA DP ARCHITECTS
- UPCYCLER
- ARUP
- AGC
- SINGAPORE POLYTECHNIC SP
- Hydro

Asset owners

Developers

Builders

etc.



MEMBERSHIP MODEL

Industry
(needs)

Free subscription

Including:

- Declaration of needs
- Purchase of used products and materials

Steering Committee

(Strategy & Resource Management)

Free subscription

Including:

- Strategy
- Trainings
- Methodology
- Resource Management (by Upcyclea)

SUM
Platform

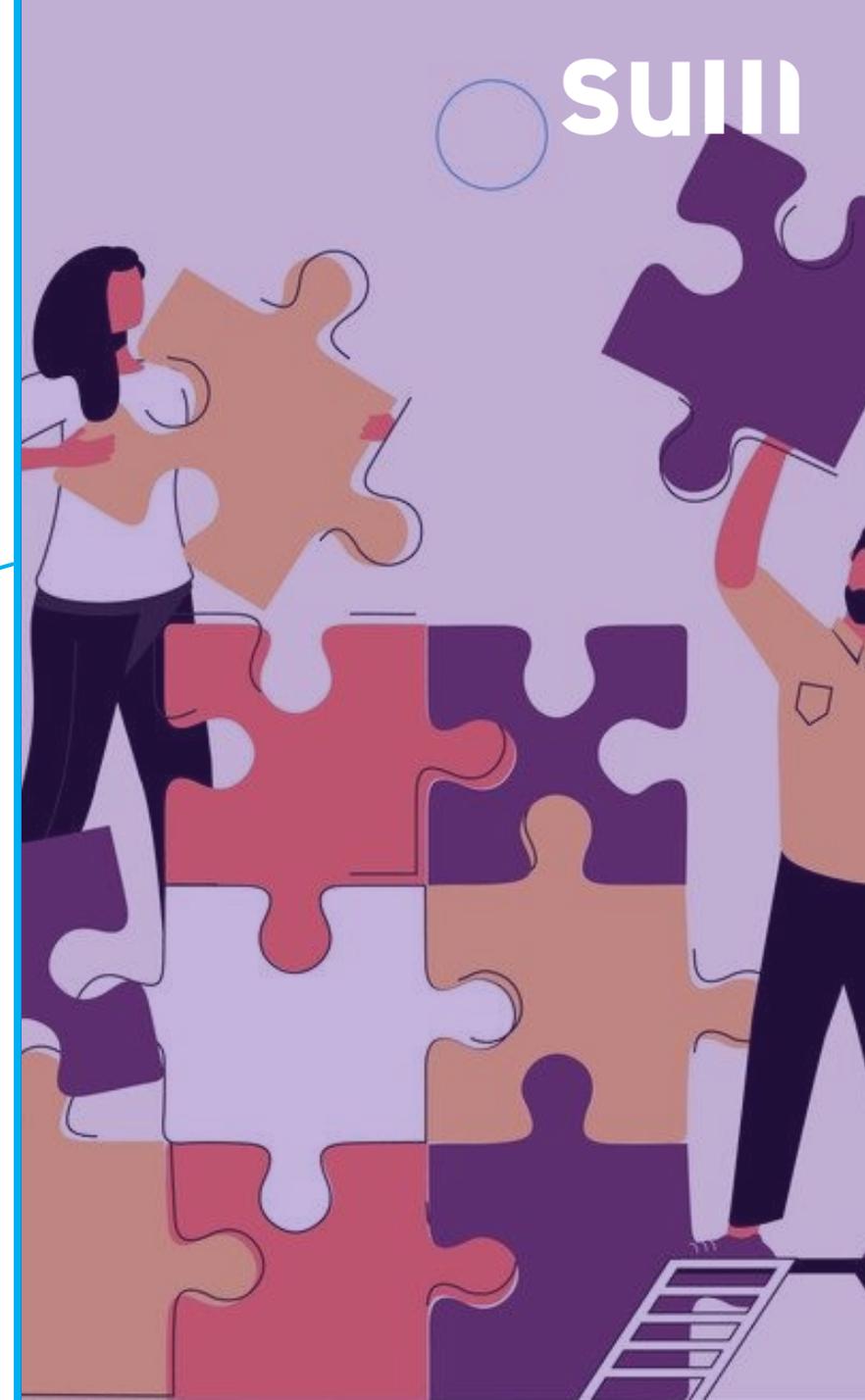
Deposit
Owners
(deposits)

- **Yearly subscription: S\$3,000**
- **Per building: S\$200–S\$1,000***

Including:

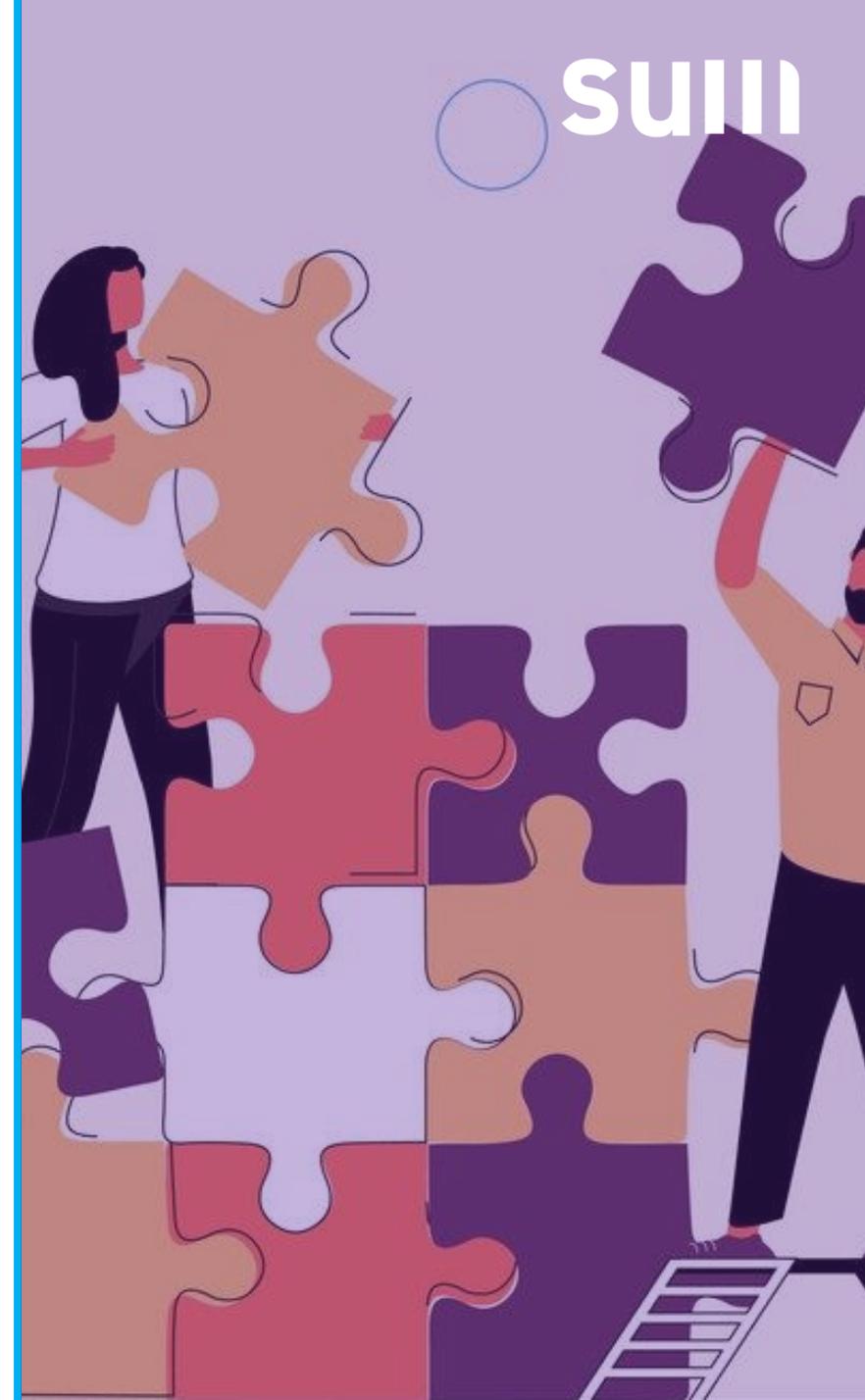
- Buildings' PDAs imports
- AI-based Reuse Proposals
- ESG Outflow Indicators

* according to the number of buildings



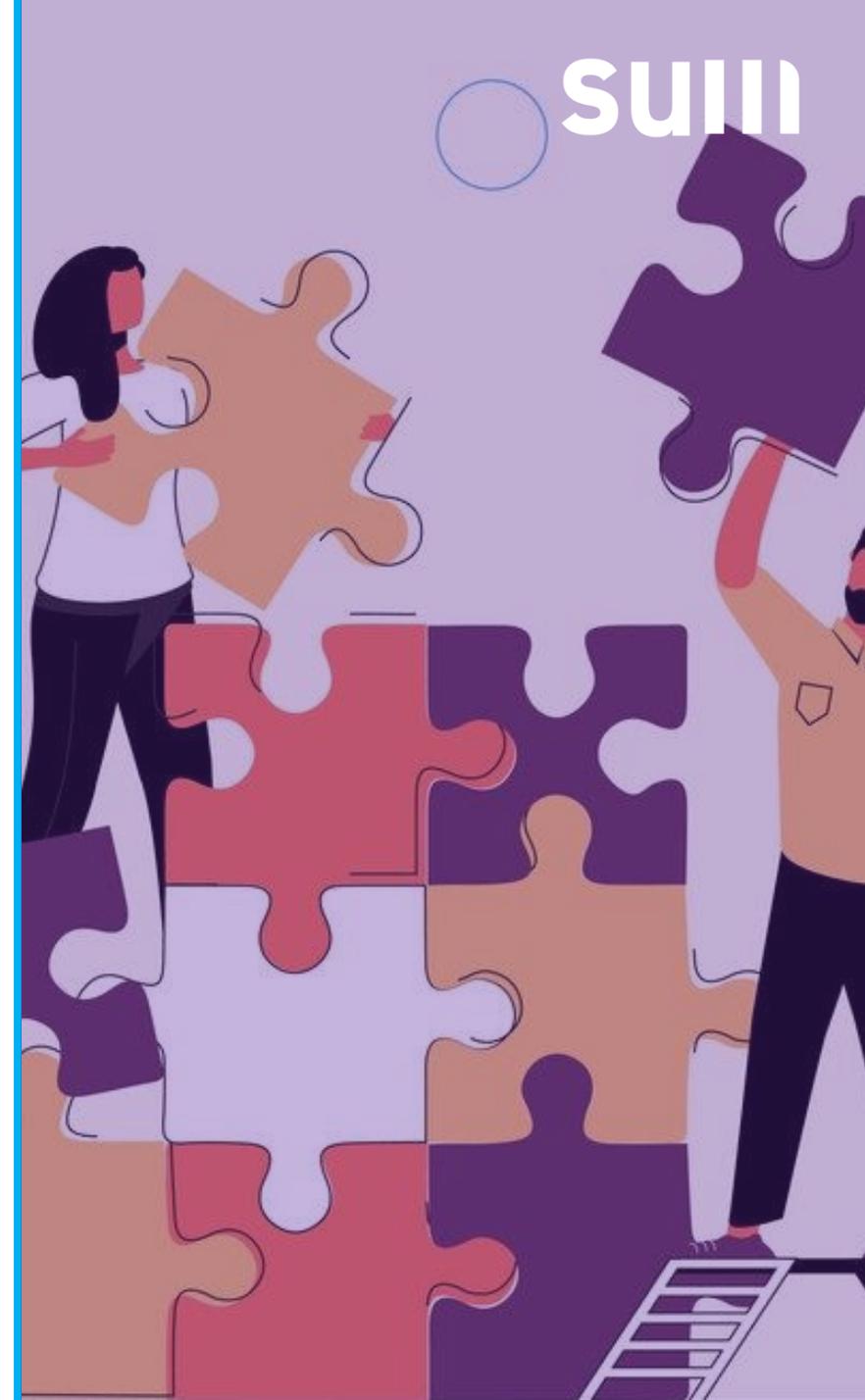
WHY JOIN SUM?

- Reduce risk by working together with industry peers in dynamic forum
- Transparency on sources of demand and supply
- Speed up reuse by engaging a large pool with capability to federate other marketplaces
- Obtain visibility on material flows and market signals
- Access social value opportunities
- Be part of the conversation that will help drive policy
- Make savings, decarbonization and reuse possible

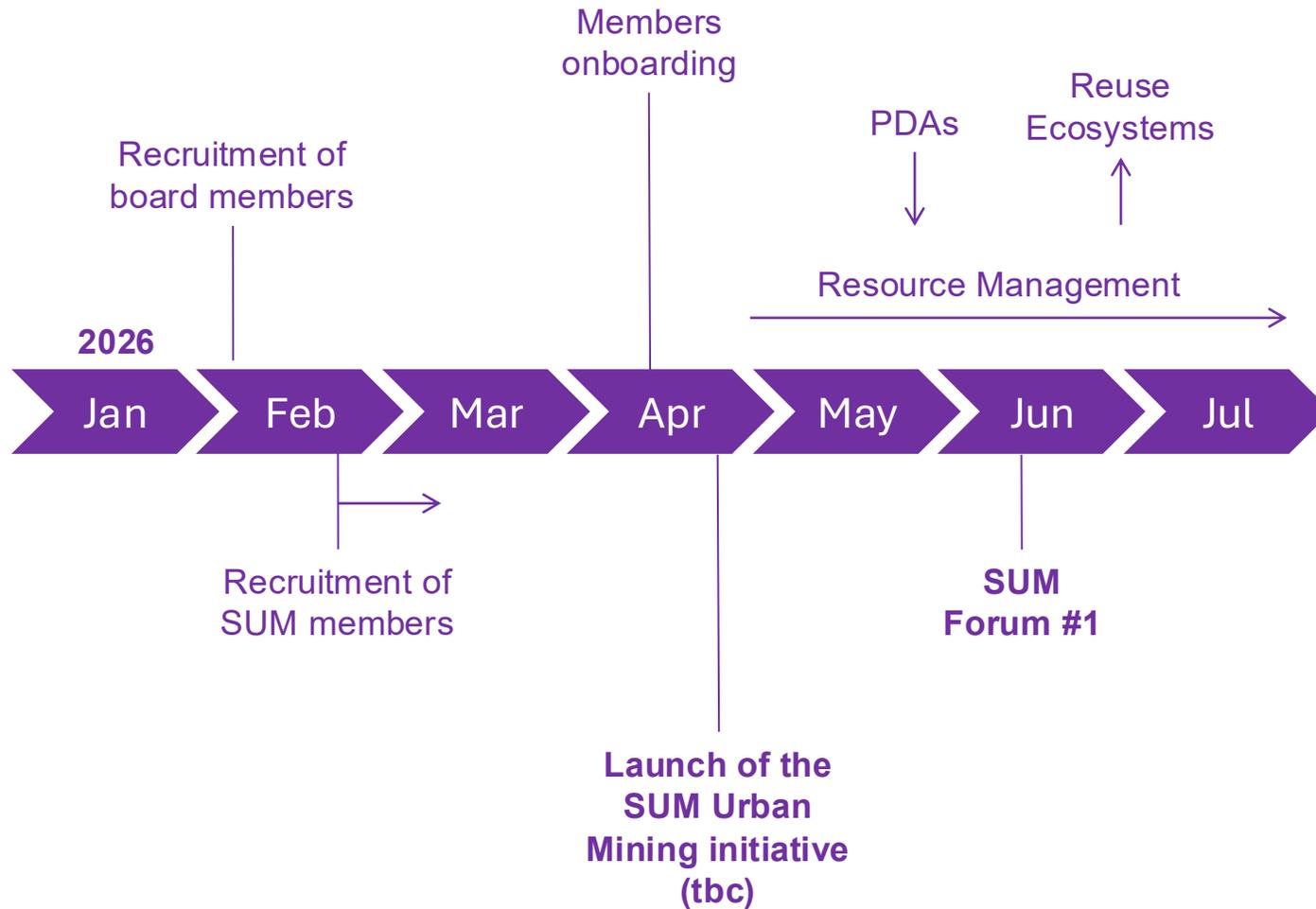


THE SUM FORUM

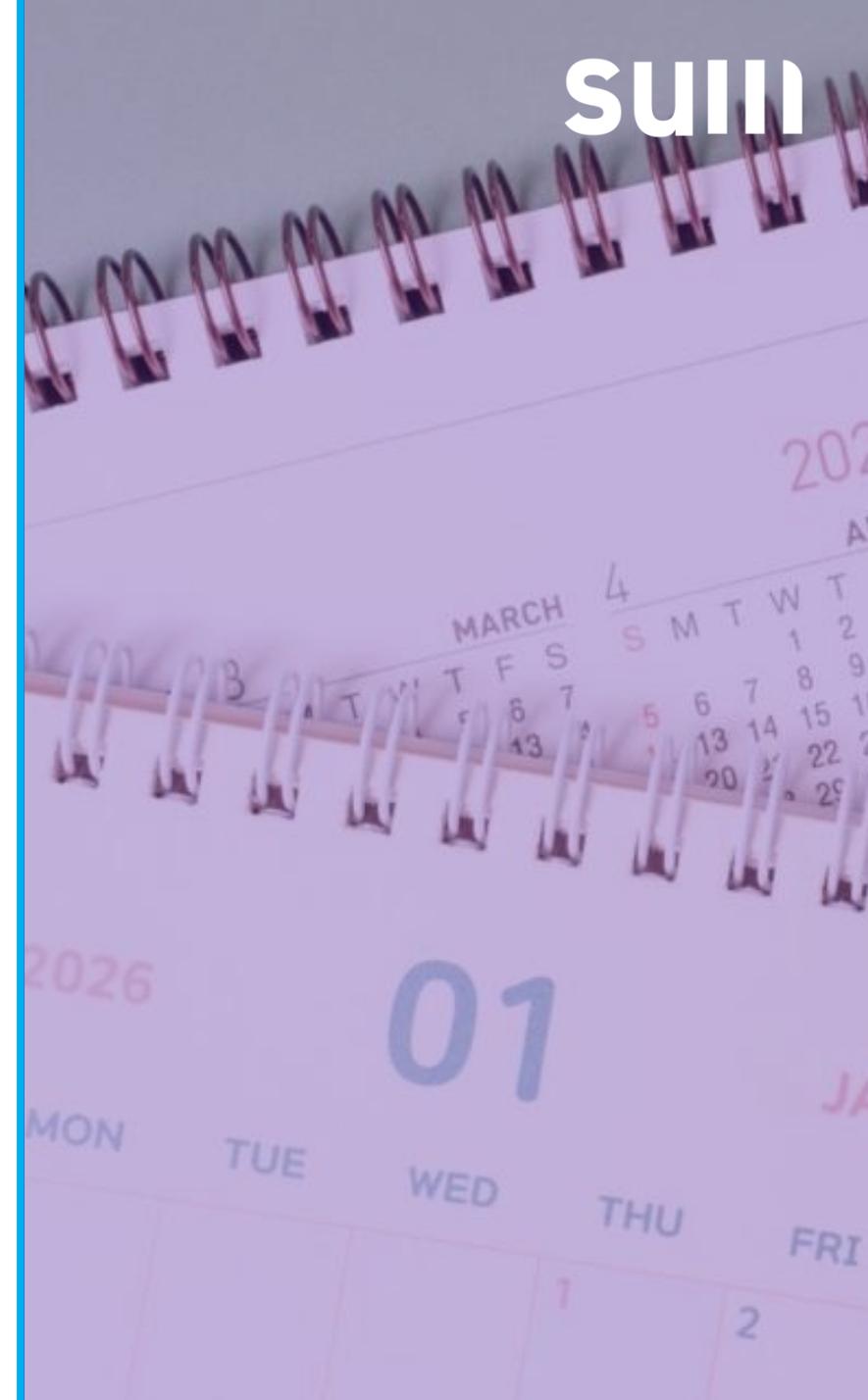
- Bringing together forum of key stakeholders in monthly meetings
- Dynamic review of opportunities, live projects, to discuss needs and request support with challenges
- Address early warnings and provide solutions
- Held at BCA Academy (?)



NEXT STEPS



SUM

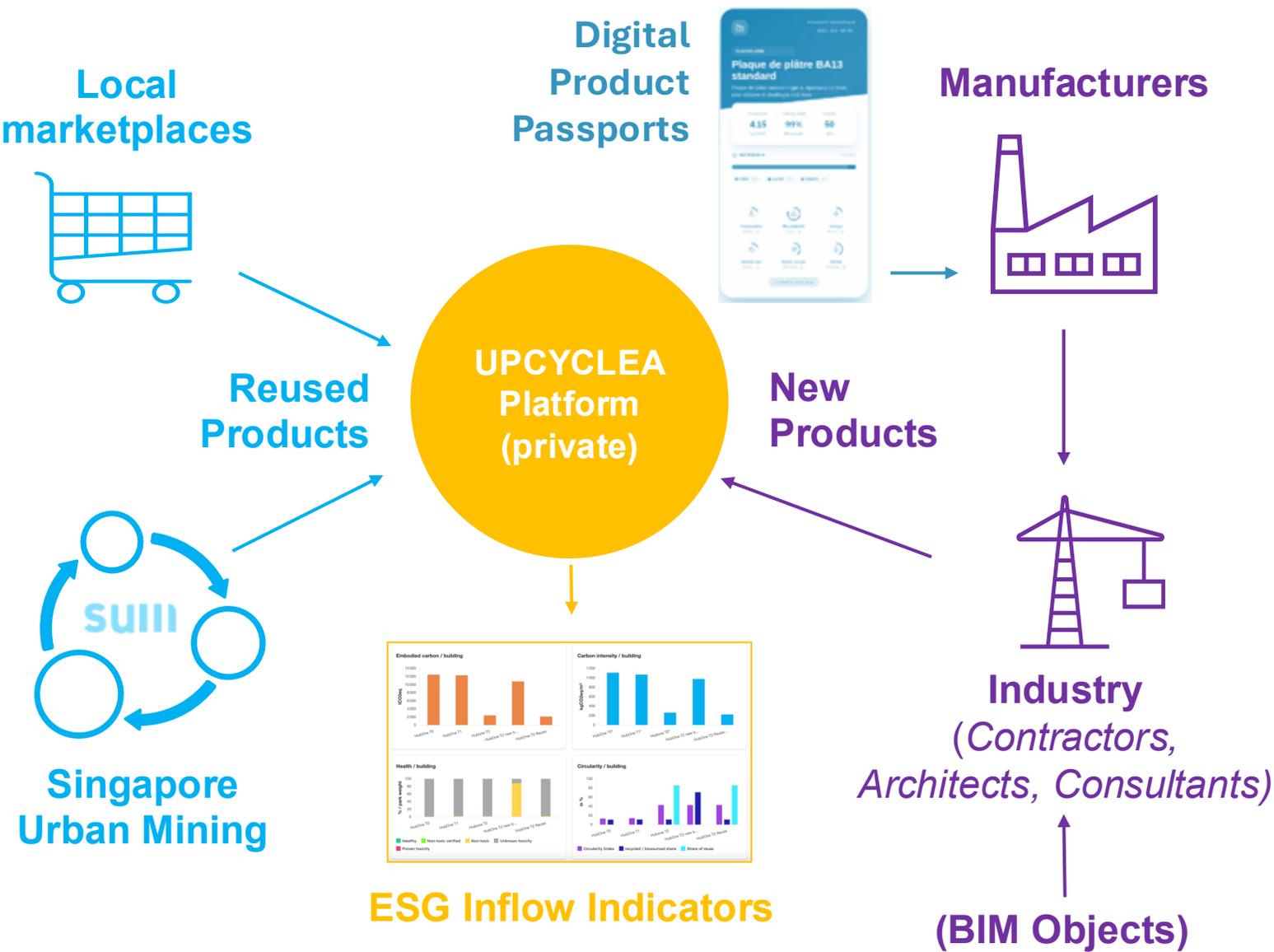


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A photograph showing several construction cranes in silhouette against a dramatic sunset sky. The sun is low on the horizon, creating a bright orange and yellow glow that transitions into a darker blue and purple at the top. The cranes are of various sizes and are positioned across the frame, with some in the foreground and others in the background. The overall scene is industrial and atmospheric.

CIRCULAR CONSTRUCTION

CIRCULAR CONSTRUCTION



A LIBRARY OF +17,000 DIGITAL PRODUCT PASSPORTS

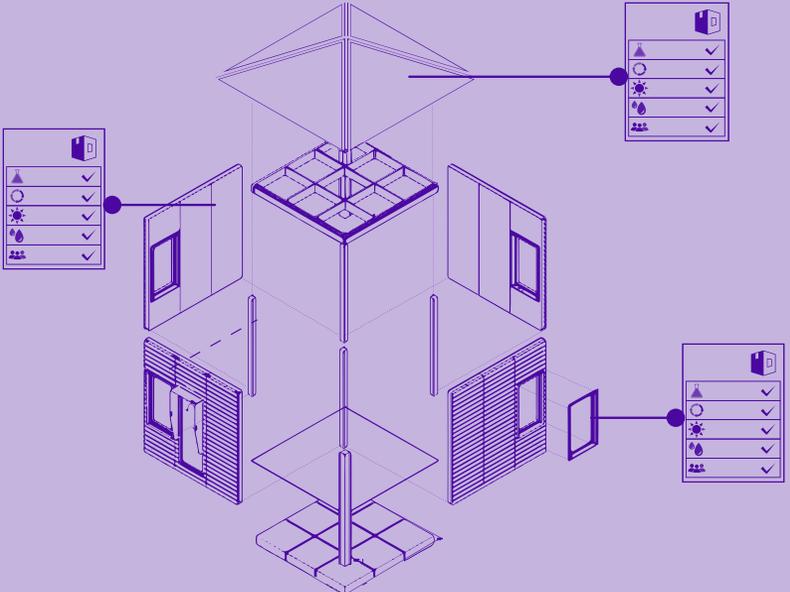
- Product Composition
- Problematic substances?

- % Recycled/bio-based
- Possible Next Lives
- Period of use

- Carbon, Water, Energy Footprints (from EPDs)
- Social Responsibility

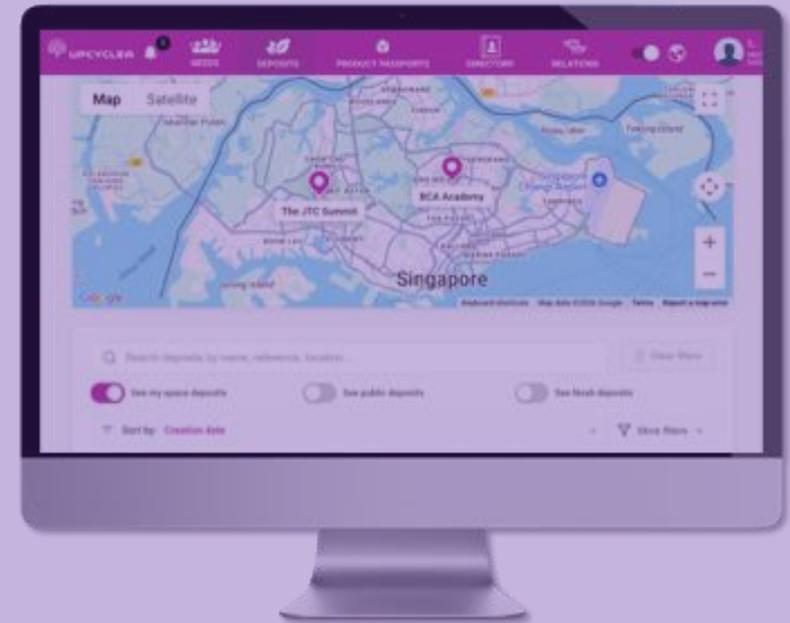
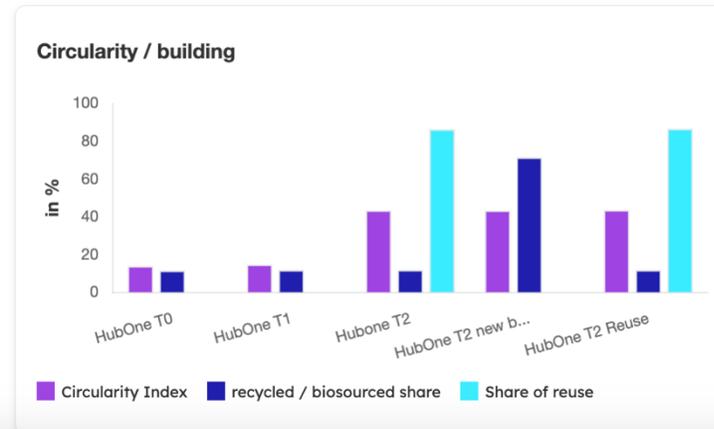
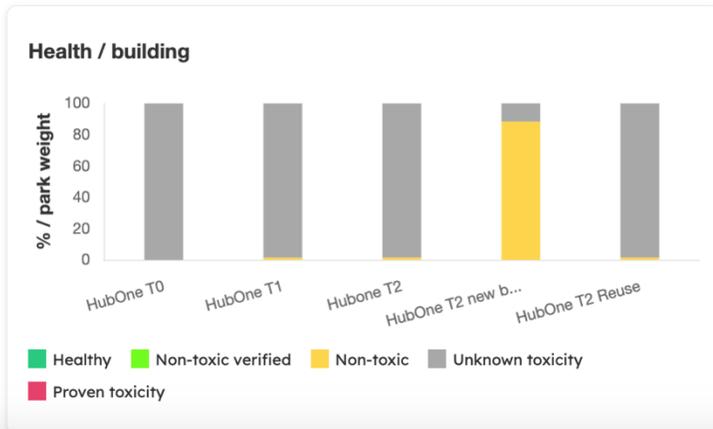
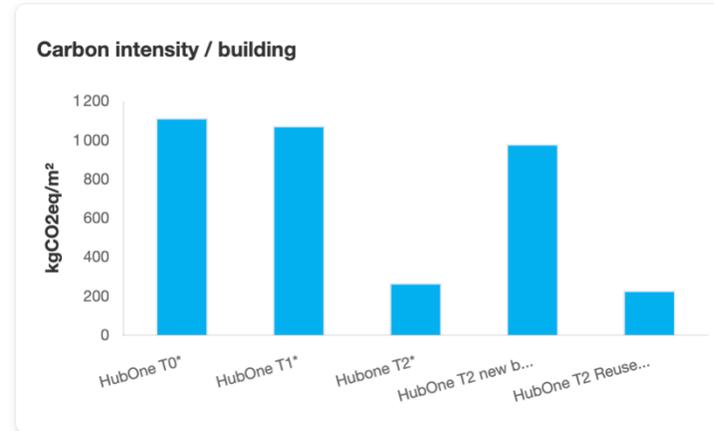
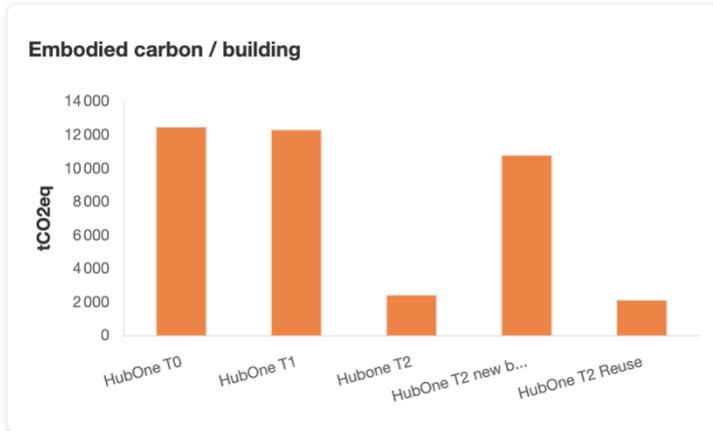
- Production Sites
- Distribution
- Documentation
- Certifications (Cradle to Cradle, SGBP)

The screenshot shows the UPCYCLEA interface with a green header containing navigation tabs: PRODUCT PASSPORTS, DEPOSITS, SITES & TAGS, CIRCULAR SIGNATURE, and EPILOG AGENT. Below the header is a list of product entries. Each entry includes a manufacturer logo, product name, category, materials, unit, and version. To the right of each entry are icons representing different attributes: Cradle to Cradle, EPD, Recycled content, Carbon footprint, Water footprint, Energy footprint, and Social Responsibility. A tooltip for the 'Mirrors - AGC Glass Europe - Mirox MNGE - 4 mm - V2024' entry shows an 'SGBP Certificate - Excellent' status.



BUILDINGS AS BANKS OF MATERIALS

REAL-TIME ESG INFLOW INDICATORS



**BUILDINGS
PASSPORTS**



THANK YOU!

**Contact: Eric Allodi // CEO Upcyclea
eric@upcyclea.com // +65 8056 1536**