TOILET BOARD COALITION

5 BUILDING BLOCKS TO SCALE THE SANITATION ECONOMY

LEARNINGS FROM 5 YEARS OF THE ACCELERATOR

www.toiletboard.org

INTRODUCTION

The accelerator programme has run for more than five years already.

Today, with a portfolio of 45 Small and Medium Enterprises (SMEs) operating across 12 countries – growing swiftly, raising commercial investments, engaging with corporate partners and governments – the impact has multiplied enormously. From a few thousand customers in 2016, now the combined portfolio reaches 1.5 million customers every day, creating value and dignity for them and their communities.

The momentum is unmistakable and permeating fast across the innovation spectrum. Spurred by the heroic growth of the more mature sanitation SMEs, the early-stage sanitation innovator has new resolve and is bringing bold new technologies to market, with the aim of bringing safe, sustainable, dignified sanitation to all.

There is increasing recognition within governments that business solutions for sanitation can create significant and rapid impact at a fraction of the costs. Governments are actively enabling business solutions and this enablement is infusing fast across the government supply chain.

Large corporates and SMEs are working together in our accelerator programme, exploring opportunities where their visions intersect and their strategies converge, allowing SMEs to participate in the large corporation supply chain that is designed to deliver at scale.

As the sanitation economy supply chain integrates with the scaled-up government and corporate supply chains, everyone wins: SMEs experience a strong tailwind as more systematic demand is unlocked; governments and corporations use sanitation's last mile gateways to expand their products and services envelope.

It is only the sanitation supply chain that touches all of humanity every single day.

Over the last five years, as we worked with SMEs, we studied their unit economics and coached them on pathways to scale. This work, across diverse business and revenue models, geographies and consumer segments, has helped us become aware of common challenges that SMEs face: recurring themes that SME growth depends on.

All this naturally builds an intelligence and widens our lens towards systems and structures that can benefit many SMEs at once and boost them into a new ambitious growth trajectory.

Perhaps this intelligence can illuminate the way, as private sector stakeholders of all sizes strive to face the challenge that we are not on track for achieving SDG 6 unless the rate of progress can double.

The journey ahead will require not just enablement but building structures that can enable: structures that are ready to be unlocked, ready to be leveraged by several SMEs, structures that can propel aggregate SME growth to a new orbit.

This report looks at five such structures that can build strength, build capacity and clear out critical pathways for the next stage of growth of the sanitation economy.

Venugopal Gupta
Director of Accelerator & Investments
Toilet Board Coalition

5 BUILDING BLOCKS TO SCALE THE SANITATION ECONOMY

1 GROSS MARGIN

MONETIZING THE LEARNING CURVE

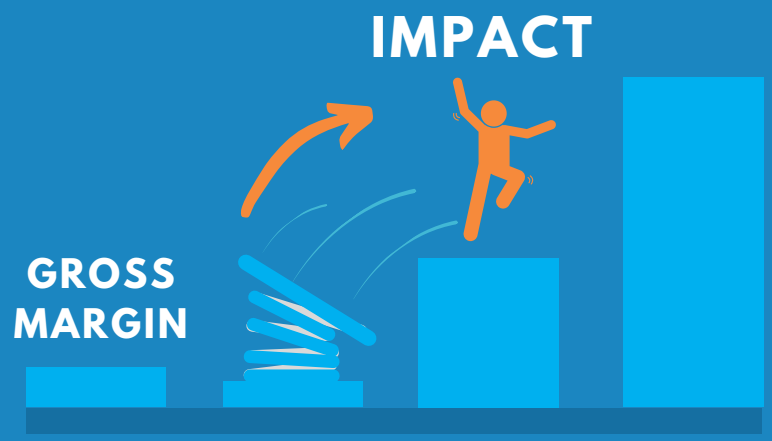
As the business grows, a continually strong gross margin is an indicator that the business is monetizing the learning curve effectively, learning enough to increase revenues and decrease costs systematically.

Gross margin is critical for a business model. Very broadly, it demonstrates the inherent strength of the business model to scale – in other words, a potential for scale.

High gross-margin businesses are ready to scale up and, conversely, weak gross-margin businesses are not yet ready to scale up.

As the picture below shows, for social enterprises, a strong gross margin is not just about business health and stamina for scale, but is also about potential for impact. As the gross margin grows, so does the business's ability to offer the same service at a lower price and – because of the combined effect of increased adoption as well as price elasticity – the systemic lowering of prices significantly enhances impact.

GROSS MARGIN BUILDING UP



As the Illustrative economics of a community sanitation centre model depict below, a strong gross margin can allow the business to ease pricing and significantly deepen its impact in the communities it operates in.

	Y0	Y1	Y2	Y3	Y4	Y5
Gross Margin	**37%**	**50%**	**60%**	**59%**	**57%**	**54%**
Business Model Optimization +		13%				
Learning curve/Cost Efficiencies +			5%	7%	9%	11%
Learning curve/Revenue Quality +			5%	7%	9%	11%
Price Easing -				-15%	-20%	-25%
Price Index	100%	100%	100%	85%	68%	51%
Price per person per use	$0.10	$0.10	$0.10	$0.09	$0.07	$0.05
Increase in Impact	**0%**	**10%**	**21%**	**57%**	**118%**	**190%**

2 ASSET MANAGEMENT FUND

FINANCING LONG TERM ASSETS

The sanitation sector exhibits characteristics of both utility and infrastructure sectors – therefore, increasing sanitation access will entail intensive development of assets, such as sanitation centres, treatment plants etc.

While the life of these assets is 15 to 20 years, the funds currently available to finance them are mostly short-term debt with a tenure of three years.

This financing of long-term assets through short-term debt chokes the profitability of the sanitation SME and its ability to scale up. As the table below illustrates, debt servicing could be up to 40-50% of revenues – wiping out, in some cases, the entire gross margin of a sanitation SME.

What is needed is long-term capital for asset development and management. In fact, the highly stable, recession-proof demand of the sanitation asset could be very attractive for asset managers.

HOW TO INTRODUCE ASSET MANAGEMENT

STEP ONE

SME builds a community sanitation centre (CSC) or public toilet (PT) at a cost of $15,000.

STEP TWO

SME stabilises revenue streams in 2-4 months from daily operation.

STEP THREE

Asset Management Investor buys asset at agreed premium (say at 10% or $16,500) and signs an operations agreement with SME at agreed terms.

STEP FOUR

SME builds another CSC/PT after recovering capital.

SANITATION ASSET FINANCING

	Inputs	Y1	Y2	Y3	Y4	Y5
Cost of Community Sanitation Asset	**$ 20'000**	**$ 20'000**	**$ 18'000**	**$ 16'200**	**$ 14'580**	**$ 13'122**
People per day - (@75% Capacity)	75%	375	750	1125	1500	1875
ARPU	0.15	$ 0.15	$ 0.17	$ 0.18	$ 0.20	$ 0.22
Daily Revenue		$ 56	$ 124	$ 204	$ 299	$ 412
Monthly Revenue		$ 1'406	$ 3'094	$ 5'105	$ 7'487	$ 10'294
Yearly Revenue		$ 20'875	$ 40'725	$ 64'496	$ 92'759	$ 126'158
Finance Charges		($ 8'760)	($ 16'643)	($ 23'738)	($ 30'124)	($ 35'871)
Finance Charges (as % of Revenue)		**52%**	**45%**	**39%**	**34%**	**29%**

ASSET MANAGEMENT BENEFITS

For the SME

- Ability to shorten its capital recovery period (or payback period) from approximately 2.5 years currently to 3 months, thereby accelerating asset development tenfold.
- Ability to retain the operations of its facility with an incentive tied to operational performance.

For the asset management investor:

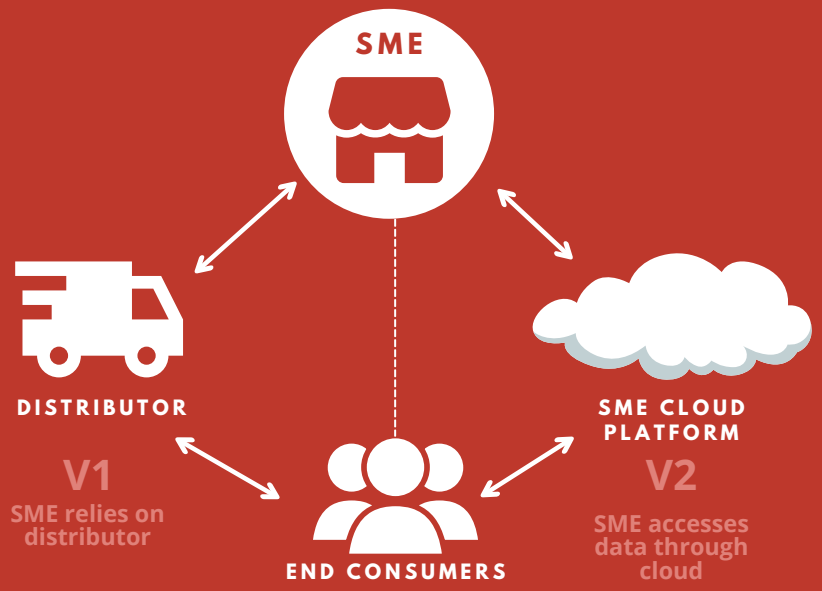
- Ability to own the sanitation asset in the long-term with stable, recession-proof yields.

3 SUBSCRIPTION PLATFORM

A STRATEGIC TOOL

SMEs invariably need to forge partnerships to distribute their products, which can bring a new challenge: adding a layer between them and their customers. This is not ideal for a small SME in partnership with an established player – it runs the risk of the distribution partner exercising unreasonable power in the arrangement.

One way to mitigate this risk is through the use of technology, with smart products. As products are installed at customer locations, they can start communicating in real time with the SME cloud platform, not only providing control and monitoring information but also offering a direct connection with their customers.



A NEW VALUE PROPOSITION: SUBSCRIPTION MODELS

Real-time consumer insights can be generated through the real-time cloud platform, enabling the SMEs to receive critical operational information, prompting proactive scheduling of service requests and lowering downtime at the customer premises.

This can form the basis for product refinement and highlight strategic growth areas. The technology can ideally come to the customer in the form of a modest subscription fee, charged monthly or annually. This subscription fee not only enhances the overall value proposition of the product in the eyes of the customer, but its periodic payment also defers the immediate burden on the customer and improves the price/value equation.

GROSS MARGIN GAINS FROM SUBSCRIPTION REVENUES

The subscription revenues have one big bonus: they have very high gross margins. This is because the marginal cost of serving an additional customer, or the incremental cost of providing a subscription to a new user for a platform, is near zero. Therefore, these revenues come at a gross margin of almost 100%.

Additionally, these revenues do not just grow linearly, they also grow exponentially with sales, as the installed number of products functioning at any time grows.

The table below illustrates that, even with a modest 5% annual subscription, the net improvement on gross margin is around 15% in five years.

		Y1	Y2	Y3	Y4	Y5
Sales (Units)	*$100*	10	20	30	40	50
Sales Revenue ($)		$1'000	$2'000	$3'000	$4'000	$5'000
Gross Margin		50%	50%	50%	50%	50%
Installed Base		10	30	60	100	150
Subscription Charge	*5%*	$50	$150	$300	$500	$750
Effective Gross Margin		55%	58%	60%	63%	65%
Gross Margin Gains		**5%**	**8%**	**10%**	**13%**	**15%**

4 OUTPUT PRODUCT EXCHANGE

WHAT IS NEEDED?

Output product monetization needs a system mindset: structures need to be put in place to address the growing number of FSTP plants coming into operation, in addition to the hundreds already in place.

We believe the following structures will help unlocking output product monetization at scale:

- **Standardization, testing and bagging:** the output products produced in the FSTP plants need to be standardized and tested based on predefined parameters and then provided a rating that can decide their market value. Prospective buyers will be keener to buy a rated product.
- **Supply chain integration with industry:** the rated output products can then be allowed to integrate into the relevant supply chains, enabling wholesale offtake agreements and revenue certainty. For example, organic compost can be integrated in the fertilizer industry, water can be integrated with industrial units that do not require potable water for their operations.
- **Commodity exchange:** another idea could be to integrate standardized and rated output products with a commodity exchange mechanism that can allow instant trading and monetizability of these items.

INTRODUCING A COMMODITY EXCHANGE MECHANISM

1. WASTE IS PROCESSED IN TREATMENT PLANT
2. OUTPUT PRODUCTS ARE EXTRACTED: BIOCHAR, COMPOST...
3. PRODUCTS ARE TESTED AND CERTIFIED ON SITE
4. PRODUCTS ARE SOLD ON THE COMMODITY MARKET

USER FEE ACCEPTANCE

Treatment plants often process fecal sludge that is obtained from pit latrines. The frequency of desludging might vary from 2-3 years and comes at a reasonable per capita cost. If this cost can be converted into a recurring monthly/quarterly fee, this cost becomes highly affordable. Therefore, it is the mechanism of fee collection, rather than the quantum of the fee, which is a challenge.

Some municipalities have implemented this fee as a surcharge on property tax. However, in most places, private operators have setup call-center operations and offer these services on request.

The current COVID context, which has accelerated technology adoption across informal communities, could prove to be a blessing, both for fee collection as well as operations scheduling.

GROSS MARGIN GAINS

Over time, the treatment technologies and their operations will become more efficient, more cost-effective. Concurrently, the effects of steadily increasing output product monetization and user fee acceptance can turn the current treatment plant into a fully cost-recovering business model.
Based on the indicative economics of a 10 KLD fecal sludge treatment plant, one can notice the transition from a non-cost recovering model (gross margin -173%) to a robust business model (gross margin +67%).

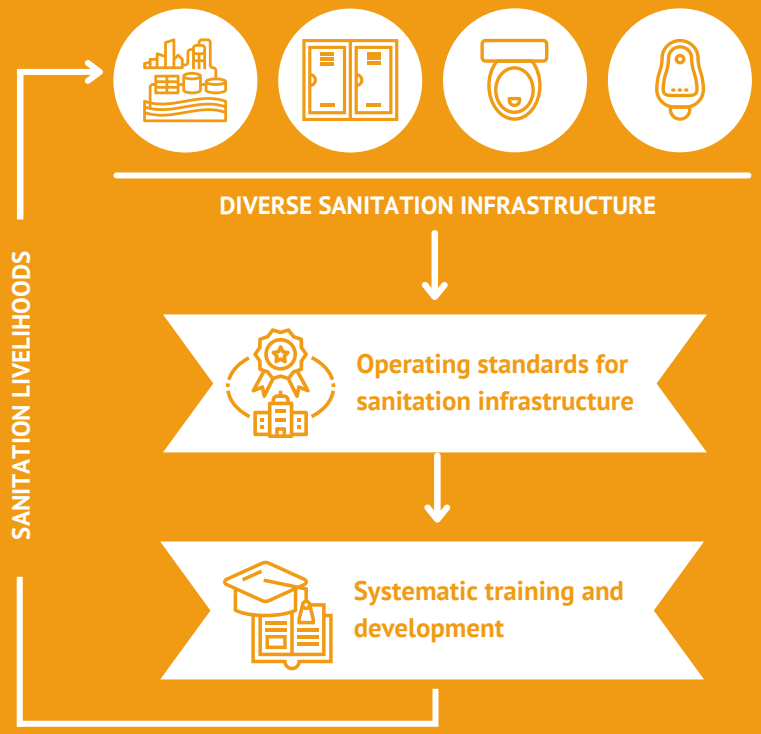
	Y1	Y2	Y3	Y4	Y5
Capital Cost Index	100	90	80	70	60
O&M Cost Index	100	90	80	70	60
User Fee Acceptance	20%	40%	60%	80%	90%
Output Product Monetization	20%	40%	60%	80%	90%
Other Revenues		5%	10%	15%	20%
User Fee Price Easing Potential			Yes	Yes	Yes
Gross Margin	-173%	-19%	31%	56%	67%

5 COMMUNITY ECOSYSTEMS

SANITATION STANDARDS AND TRAINING

As sanitation coverage accelerates at a rapid pace, it will, systematically, require trained and skilled people to operate the diverse sanitation infrastructure in a way that creates value for users and communities.

This will require a systems approach to training and development. Operating standards of diverse sanitation infrastructures will need to be defined so that organised training and development programmes can be undertaken to meet the demand for sanitation.



CREATING COMMUNITY LIVELIHOODS

The chances are that new livelihoods will be created in the same communities that the infrastructure is serving. These livelihoods will bring some unique advantages to the communities:

- **Opportunities that are resilient:** waste management and sanitation are essential services that are not vulnerable to economic cycles or any other disruptions.
- **Opportunities that offer career mobility:** waste and sanitation are new fields and will create jobs at multiple levels, therefore lowest-level workers will have opportunities for growth and development.
- **Opportunities that restore dignity:** the new solutions in waste and sanitation are technologically advanced and have shifted the human/waste interface with human/machine/waste interface that provides greater scalability and efficiency. This also restores dignity for waste and sanitation workers.

GATHERING COMMUNITY INTELLIGENCE FROM MICRO-ENTREPRENEURS

As sanitation creates more livelihoods within the end-user community, this seamlessly blends the community intelligence into the sanitation SME's business model: behaviours, habits, preferences and cultural patterns.

Of course, this community-based micro-entrepreneurship will also provide:

- Local operational capacity
- Lower financial risk by distributing some costs.

5 YEARS OF THE ACCELERATOR

Since 2016, the Toilet Board Coalition's **specialised corporate accelerator programme** has been supporting entrepreneurs with bespoke mentorship, partnership and the visibility to scale their sanitation economy businesses. More than toilets alone, we look for commercially-viable businesses across the sanitation economies: including innovative sanitary-ware infrastructure, products and service providers, toilet resource collection, treatment and transformation.

Each company in the programme → Completes Unit Economics, Pathways to Scale and Investor Readiness Curricula with TBC → Co-designs and progresses through a work plan with their MNC mentor

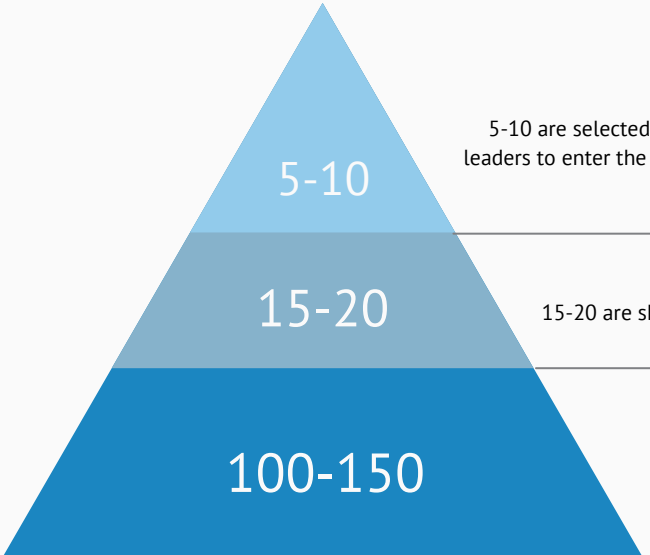
2016: Svadha, LIXIL PTS Laguna Water, RfD, Clean Team

2017: The Biocycle, Sanergy, Sanivation Samagra, Safisana

2018: Biomass Controls, Ti Bus, Garv, Blue Water, Company Tiger Toilet

2019: LiveClean ATEC Lootel, Saathi Joelex

2020: Bhumijo, Pit Vidura, Eram Scientific, Arrebol, H20 Sanitation, Pennine Energy Innovation, GreenPlat, Liquid Gold, PadCare, WASE, Ecodew



5-10 are selected by sector leaders to enter the programme

15-20 are shortlisted

Each year 100-150 entrepreneurs from 41 countries apply to the Accelerator

3.2 M tonnes of treated waste

93% alumni secured investment and/or partnership with MNC to scale their venture

5 cohort

32 companies

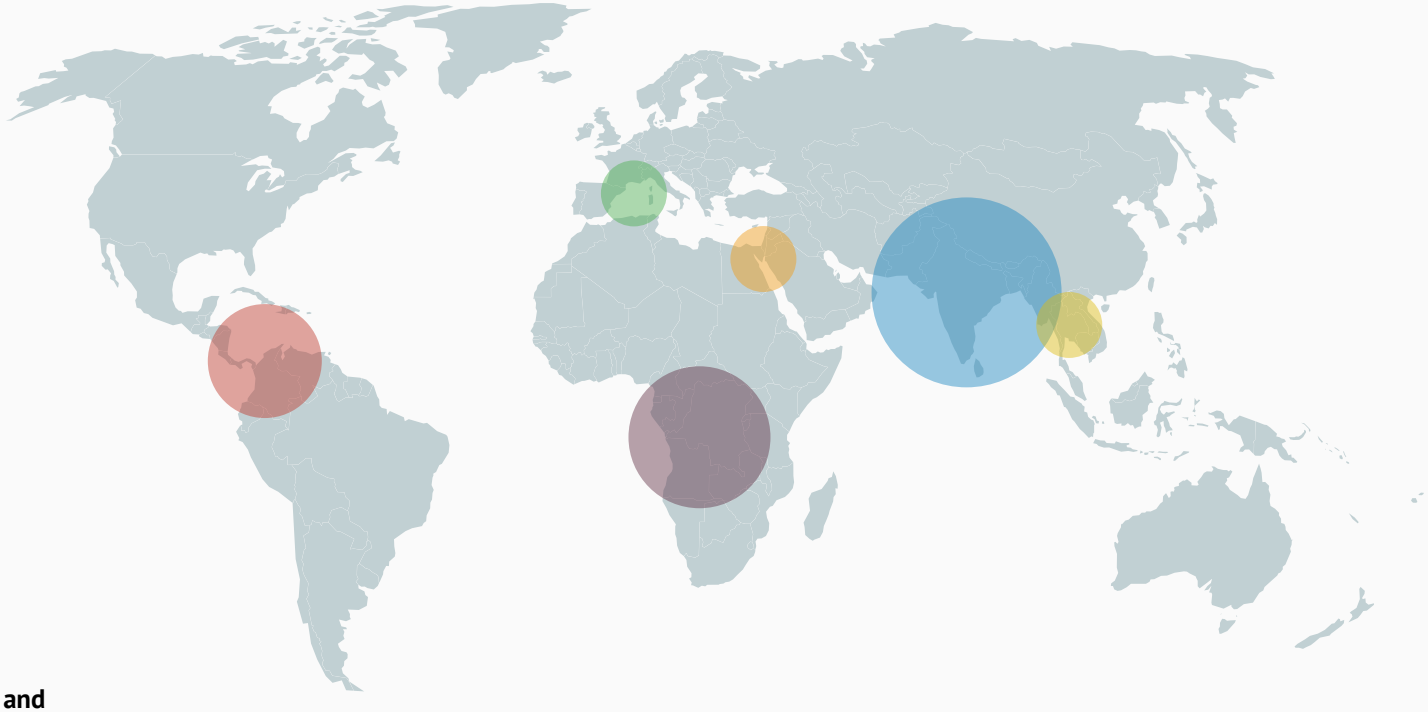
$10 M investment enabled into SMEs over the last 5 years, with 5 million of that in 2020

73 M customers

22,000 tonnes of CO2 emissions mitigated

15 professional development webinar hosted in 2020 on subjects such as Data Analytics, HR, Consumer Insights, Design Thinking, Legal Support, Female Entrepreneurship, Microfinance, Business Analytics, Business Rellliance Planning

A GLOBAL PORTFOLIO OF SANIPRENEURS



North America and Latin America & Caribbean

- Aerosan
- Platforma Verde
- Arrebol
- Biomass Controls
- Be Girl

Sub-Saharàn Africa

- Clean Team
- Safisana
- Sanergy
- Sanivation
- Mama Toto
- Usafi
- Syna Consultancy
- Pit Vidura
- Liquid Gold
- Penine Energy
- GD Fittings
- H2O Sanitation
- Biomass Controls
- Live Clean
- Joelex

MENA

- Akyas

Europe

- Turn and Flow
- Wase
- Pikkuvihreä

South Asia

- Svadha
- Samagra
- Biomass Controls
- Blue Water Co.
- Garv Toilets
- Tiger Toilets
- Toilet Integration
- Lootel
- Saathi
- EcoDew
- Eram Scientific
- PadCare Labs
- Fluid Robotics
- Organica Biotech
- TrashCon
- Woloo
- Shobbar Janno Pani
- Bhumijo

East Asia and Pacific

- Atec

WHAT THEY THINK OF THE ACCELERATOR

The TBC is supporting early-stage sanitation companies and supporting their business practices. It has helped us develop our financial models and strategy.
Thomas Fudge , CEO, WASE

My skills in the context of marketing and operations, from where we seek the corporate value, have definitely improved, we are able to communicate with the customers because of the continuous support of the TBC.
Ajinkya Dhariya, Founder & CEO, Padcare Labs

The TBC has helped Biomass Controls with inventory financing for projects in India. In the future, I am excited to work with other sanipreneurs that are complementary.
Jeff Hallowell, Executive Chair Biomass Controls

TBC accelerator helped Bhumijo to understand better our business, provided us with the tools and techniques to analyse and improve. And most importantly helped us build better organization to deliver better sanitation service.
Fahrana Rashid, Co-founder & CEO, Bhumijo

Even though in the depths of a pandemic, there is always an opportunity and the passion for what we do. I've been able to army through any challenges with the right advice and mentorship. From that perspective, we thank TBC for its great network and it is a privilege to be amongst the innovators and entrepreneurs who are helping to achieve a very vital part of SDGs.
Orion Herman, Co-Founder, Liquid Gold

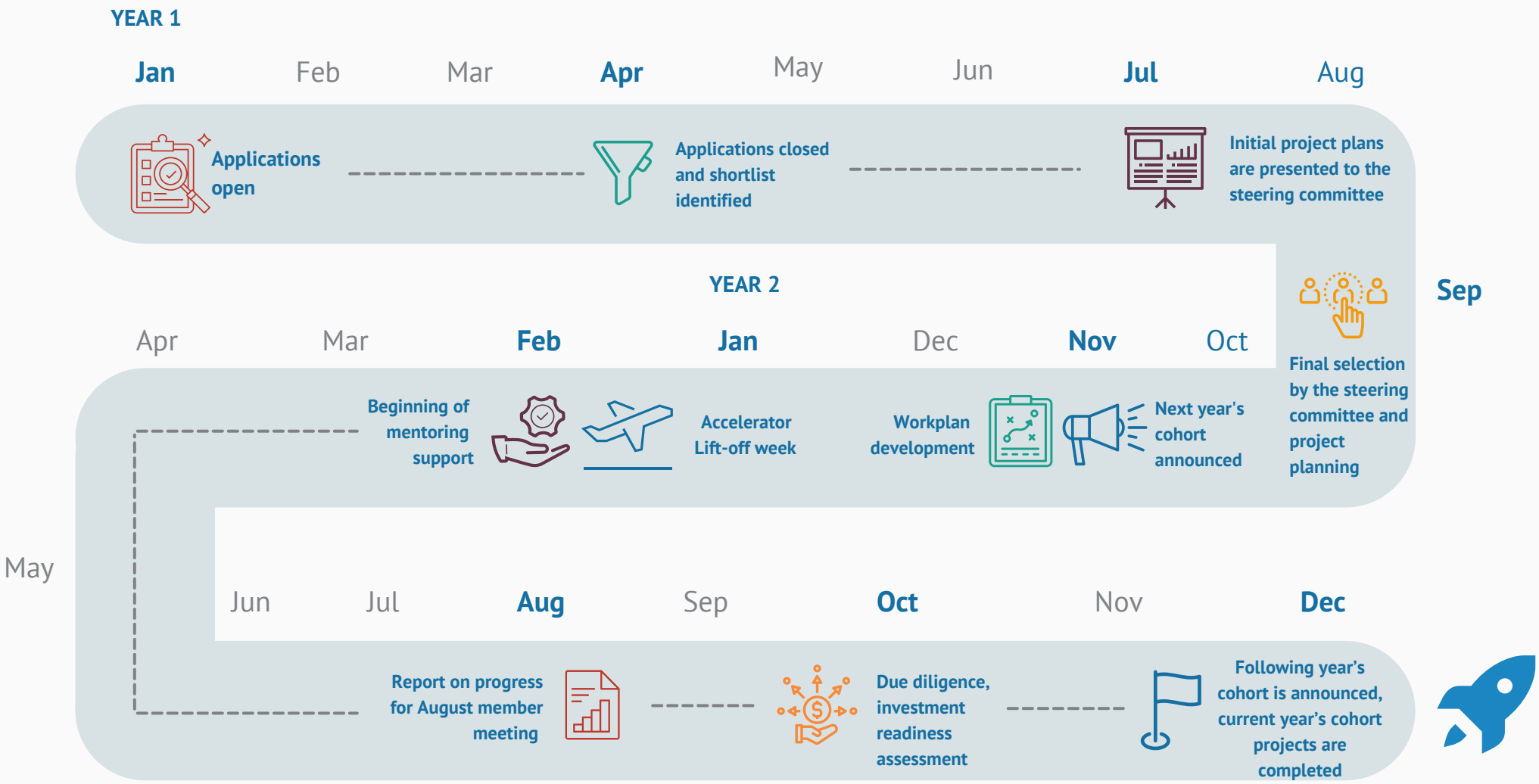
Having been inducted into the Accelerator in 2019, Live Clean Initiatives has received enormous assistance in its fight for scale and survival. Live Clean has undergone major challenges in the past couple of years from pivoting its business model to cash flow limitations. The Toilet Board through the Accelerator programme, has steered us towards fine tuning our strategy for success, connecting us with the relevant network to help us survive and grow, and providing platforms to market ourselves to gain global exposure just to get noticed for the work we do. It is fair to say the TBC cares about us and who we are and what we do and they ensure we look at every angle to be a big player in the sanitation industry. We are proud to be part of the Accelerator Programme and part of the Cohort Council and even prouder to be associated with the TBC.
Nazir Pandor, Managing Director, Live Clean Initiatives

Impressive and encouraging to see how the community of entrepreneurs in the sector has kept growing since the first cohort back in 2016. The very pressing needs bring business opportunities and the TBC has played a key role in conveying this message.
Claire Balbo, TBC Associate Director, Accelerator Programme, 2016-2019

The Accelerator programme is a truly unique opportunity for mutually-beneficial learnings, growth, impact and partnerships between large and small sanitation economy companies. It showcases the power of an ecosystem-based, collaborative model whereby private sector solutions of all sizes effectively thrive in reaching resource-constrained populations while also driving sustained profit by working together. Over time, we saw increased diversity in our accelerator portfolio - from region, gender, business model, etc - which really makes the case for how social inclusion across the value chain is a key driver in enabling the sanitation economy to thrive and to ultimately unlock opportunities to sustainably reach SDG 6.2.
Jasmine Burton, TBC Accelerator and Pipeline Manager 2019-2021

LEARN MORE ABOUT THE ACCELERATOR
www.toiletboard.org/accelerator/

THE ACCELERATOR PROCESS



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TOILET BOARD COALITION

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