PETRONAS FUTURETECH

FutureTech Accelerator Impact Report 2019 - 2024

Accelerating Innovation, Amplifying Impact



This Impact Report (the "Report") is published for informational purposes only. The data and information about the startups presented in this Annex is derived from various sources, including survey responses from the startups, independent research or from their respective Demo Day booklets developed during their cohort.

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PETRONAS FUTURETECH

About PETRONAS Ventures

PETRONAS Ventures is the corporate venture capital arm of PETRONAS, a global energy company committed to producing and delivering energy and solutions needed to advance society responsibly and sustainably.

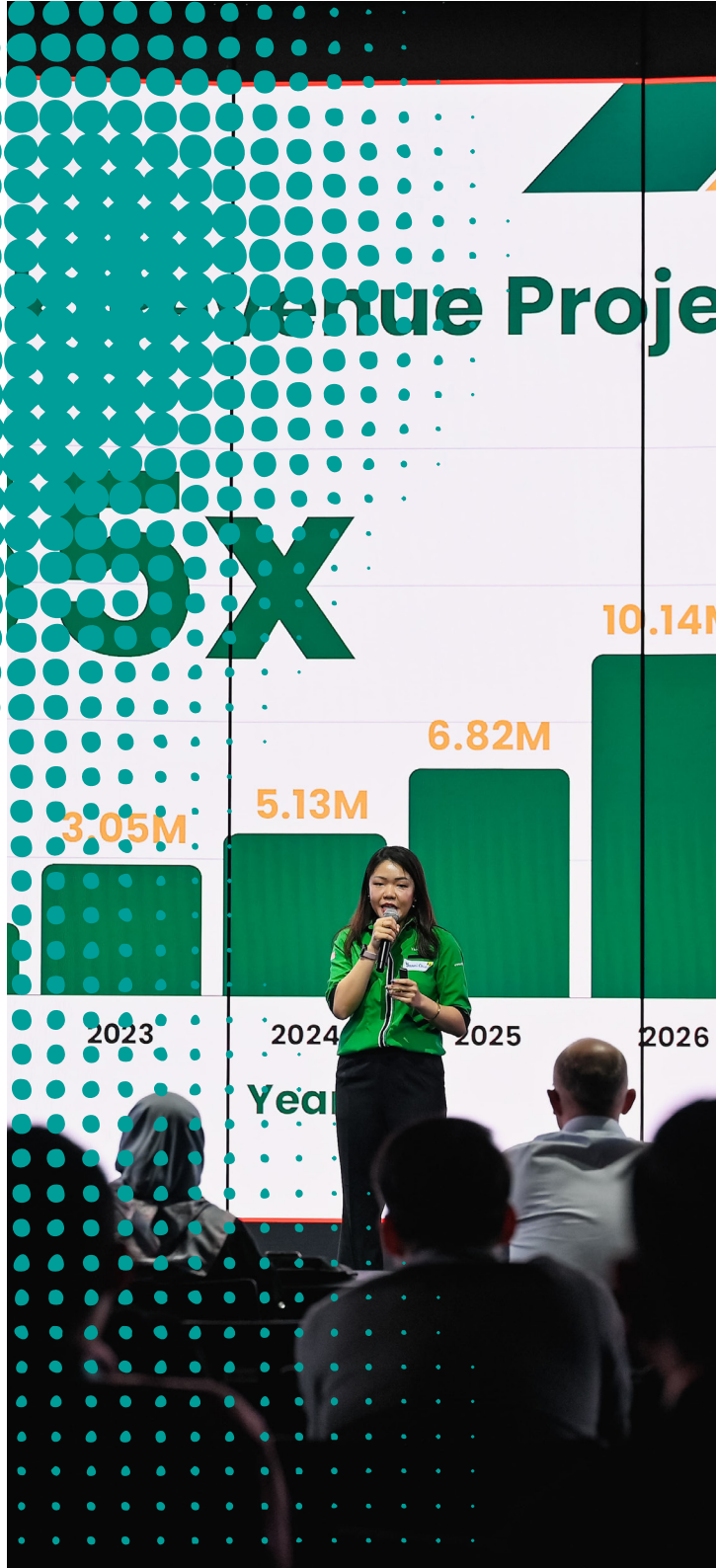
We also aim to be the growth accelerator partner in Malaysia to influence the technology-driven startup ecosystem while serving PETRONAS business needs via FutureTech.

Our direct investments in Asia and indirect investments into venture capital funds are managed by our investment vehicle, Twin Tower Ventures (TTV), based in Kuala Lumpur, Malaysia and Singapore.

In North America and Europe, our investments are managed by our investment vehicle, Piva Capital, based in San Francisco, California, USA.

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Foreword

Mohd Nazli Ghazali

Chief Executive Officer at PETRONAS Ventures



In 2019, PETRONAS embarked on an exciting journey with the launch of the FutureTech Accelerator programme. Our mission was to nurture and influence the tech-driven startup ecosystem in Malaysia and tap into the local startup talents that could contribute to PETRONAS' new growth opportunities. We recognised the immense potential that comes from collaborating with major corporations, and we set out to build an environment where innovation could flourish.

As Malaysia's national oil company, PETRONAS stands at the forefront of technological advancement. We understand that innovation is key to our nation's future. With a forward-thinking approach to energy and solutions, we are dedicated to building an innovation ecosystem that helps Malaysia reach new heights. In order to do so, we need to support the development of robust startup ecosystems and foster corporate innovation, by empowering Asia-Pacific companies and tech startups to collaborate.

> "Together with our partners and startups, we strive to **accelerate innovative, value-driven solutions** that push the boundaries of what's possible."

Our commitment to innovation is at the heart of everything we do in PETRONAS. It is our hope that successful startups from the FutureTech Accelerator Programme will contribute to accelerating our collective progress in line with the PETRONAS Energy Transition Strategy for a sustainable energy future.

With the incredible support of our Corporate and Ecosystem partners regionally, PETRONAS is honoured to contribute to the startup ecosystem in Malaysia and the wider Asia Pacific region. Let us continue to innovate, create, and collaborate to realise our shared vision of a prosperous and sustainable future.

PETRONAS FUTURETECH

Introduction

Siti Nurul Narizah M Nizar

Chief Operations Officer at PETRONAS Ventures

Since the inception of FutureTech, through three successful cohorts, the programme has grown beyond Malaysia, gaining regional prominence. We have had the privilege of working with 65 incredible startups regionally, each bringing their unique ideas and solutions to the table.

A prominent aspect of FutureTech is the close collaboration with Business Unit (BU) mentors from PETRONAS and our corporate partners. These mentors identify high-impact opportunities, provide domain-specific insights, and support pilot projects, ensuring startups gain practical experience and industry connections alongside theoretical knowledge.

In addition, our programme encourages startups, corporate and ecosystem partners to collaborate on projects that drive technological advancements and address industry-specific challenges. This synergy accelerates the commercialisation of groundbreaking technologies and solutions.

The progress of our startups highlight the impact of FutureTech, with some securing notable funding, forming strategic partnerships, and expanding their market reach. These achievements not only reflect the startups' dedication and ingenuity but also highlight the pivotal support provided by PETRONAS, our corporate and ecosystem partners.

> "This report highlights the impact of FutureTech on the **growth journey of startups, socio-economics contribution, and the broader ecosystem including PETRONAS and its partners.**"





Executive Summary

Since its inception in 2019, FutureTech has embarked on a mission to foster innovation, drive sustainable growth, and nurture the next generation of entrepreneurs. This impact report encapsulates the programme's journey, highlighting the key achievements, and milestones that have defined FutureTech's success.

Over the past years, FutureTech has successfully accelerated numerous high-potential startups by providing them with the support, resources, and mentorship needed to navigate their growth journeys within PETRONAS' growth verticals. These efforts have not only enabled startups to scale their innovations but have also contributed to advancements in various industries, including energy, technology, and sustainability.

The collaborative efforts with corporate partners, ecosystem allies, and internal PETRONAS innovation teams have further amplified the startups' reach and impact, leading to greater business growth, market expansion, and accelerated commercialisation of proof-of-concepts.

This report outlines the significant impact FutureTech has made on startups, corporate partners, and the broader ecosystem, showcasing programme highlights, success stories, and value creation. It stands as a testament to FutureTech's unwavering commitment to fostering a vibrant, innovative, and sustainable startup ecosystem in Malaysia and regionally.

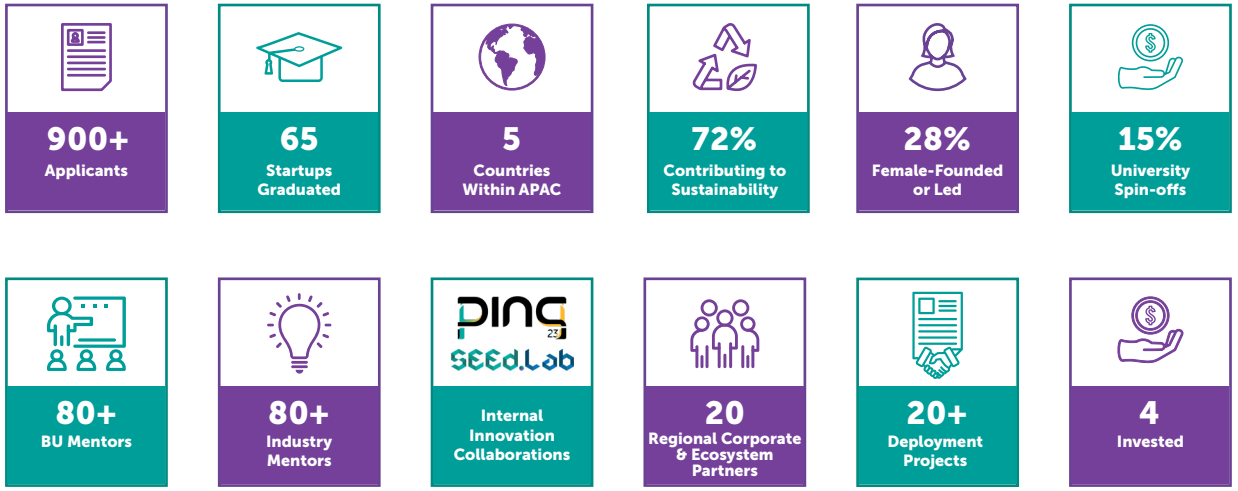
The FutureTech Mission

Mission

- Discover and nurture tech-driven startups, help them scale to global standards and influence the tech-driven startup ecosystem in Malaysia and regionally.
- Help PETRONAS find new growth opportunities and solve business challenges via local innovation.

Programme Statistics

Since its launch in 2019, FutureTech has achieved significant milestones.
Here are some of our key statistics:



To date, the programme has supported 65 startups across three cohorts. In addition, PETRONAS Ventures has made further investments in four of the startups. Over 160 mentors from PETRONAS and its network of over 20 corporate and ecosystem partners have been involved in the programme, providing valuable domain expertise and mentorship to the startups.

Our Journey

2019

FutureTech was officially launched, marking the beginning of an exciting journey towards fostering innovation and entrepreneurship.

Cohort 1.0, in partnership with 500 Startups, brought together a group of 20 high-potential startups ready to embark on their acceleration journey.

Three startups emerged as award recipients from Cohort 1.0, i.e. POMEN, AdEasy and LedgerBrains (formerly GA Alliance).



2020

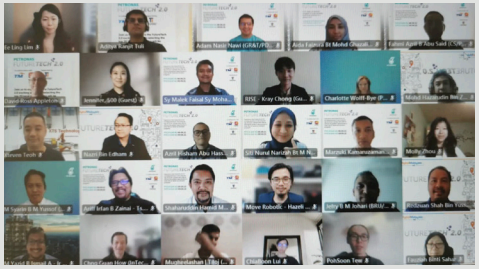
The award recipients from Cohort 1.0 embarked on an immersion programme to Silicon Valley. This programme provided the startups with invaluable exposure to one of the world's most renowned hubs for innovation and technology, further enhancing their growth and development on the global stage.



2021

FutureTech welcomed two corporate partners, Telekom Malaysia and Sime Darby Plantation. Their inclusion brought additional industry expertise and resources to the programme, enhancing the support available to participating startups.

Three startups, Bumi Data Mining, eKomoditi and BoomGrow were acknowledged for their achievements at Demo Day.



2022

PETRONAS Ventures hosted the Experience Ventures event, a showcase of the portfolio startup companies. The event provided a unique platform for networking and potential collaborations between the startups with targeted clients in the industry.



2023

In 2023, FutureTech expanded its regional reach, accepting startups from the APAC region into the programme for the first time. The programme also onboarded more local and regional corporate partners, introducing DRB-Hicom, Gentari, Hyundai, Khazanah Nasional, Sembcorp, Tenaga Nasional and Vitol to its fold.

Cohort 3.0 in partnership with StartupX kick-started its 16-week FutureTech journey with a 1-week Business Immersion experience in Singapore and Malaysia, inclusive of a pitching and networking opportunity at Energy Asia 2023.

At Demo Day, five startups were selected as the FutureTech 3.0 award recipients, i.e. Entomal Biotech, Kazam, SunGreen H2, Voltality (Beep Technologies) and Wildfire Energy. A further 5 startups were acknowledged for the MYStartup Awards sponsored by Cradle i.e. A2 Tech, Hydrexia, Qarbotech, V-Cred and Zapp World.



2024

In 2024, the awardees from Cohort 3.0 had the opportunity to explore the Thailand market on an immersion programme. This excursion provided the startups with a unique opportunity to engage with the vibrant Thai innovation ecosystem, fostering connections that could drive their growth and expansion in the Southeast Asian market.





The FutureTech Accelerator

Programme Design

FutureTech is designed to foster innovation and sustainability in various industries by providing comprehensive support to startups. The programme is built on several key pillars, each aimed at addressing the unique needs of tech-driven startups and helping them scale their solutions to market.

Our programme is based on the five following pillars:

1



Workshops and Masterclasses

- **Workshops:** Hands-on workshops focused on essential knowledge for growth-stage founders, covering various aspects of the business from pitch development to go-to-market.
- **Masterclasses:** Masterclasses, panel sessions and fireside chats by industry stalwarts to help founders develop leadership and entrepreneurial skills.

2



Mentorship and Coaching

- **Expert Guidance:** Access to a wide network of experienced mentors, industry experts, and business leaders from PETRONAS, its corporate partners and the wider ecosystem partners.
- **Tailored Coaching:** One-on-one sessions with coaches to refine business models, develop go-to-market strategies, and overcome operational challenges.

3



Networking and Market Access

- **Partnership Opportunities:** Connect with corporate partners across the Asia Pacific region, via StartupX business matching sessions, enhancing access and business opportunities.
- **Demo Day and Events:** Opportunities to participate in pitch and showcase events to network with investors and industry experts to build relationships and gain exposure.

4



Testbedding and Pilots

- **Testbedding:** Opportunities to proof startups technology in a safe zone or sandbox.
- **Pilot:** Opportunities to test and refine ideas in real-world environments with PETRONAS and its partners, ensuring practical applicability and sustainability.

5



Access to Funders

- **Access to Capital:** Access to grants, funding routes and investor networks to expedite startup growth through networking sessions and curated meetings with relevant investors.
- **Fundraising Support:** Enabling access to alternative sources of funders, assistance with preparing for funding rounds, pitching to investors and securing investment.

Growing Our Focus

A Focus on Tech and Sustainability

FutureTech is designed to unlock the potential of breakthrough technologies developed by startups, with the aim of driving the PETRONAS Energy Transition Strategy forward. By fostering innovation through collaboration, we strive to be part of the solution for a sustainable energy future.



Future of Industry and Work

Transforming traditional industries and the way we work, through robotics and automation and rethinking supply chain and logistics.

Robotics . Automation . AI/ML . Real Time Simulations . Production Optimisation . 3D Printing . Digital Twins . Smart Operations & Maintenance



Future of Energy and Mobility

Shaping the future of energy production, distribution, and consumption, as well as the mobility industry.

Hydrogen . Energy Efficient Solutions . Energy Storage Fusion . Renewables . Battery & Electrification



Future of Chemical and Materials

Revolutionising the chemical and materials industry, such as advanced materials and green chemistry.

Surfactant . Coating . Electronic Chemicals . Food Additives . Lubricants . Adhesives & Sealant . Flavours & Fragrances . Bio-chemicals . CO_2 to Value Products



Frontier Technology

Technologies that are at the forefront of innovation, such as green mobility, biotechnology and CCUS.

Green Mobility . Reduction of GHG . Circular Economy . Biotech CCUS . Nature-based Solution

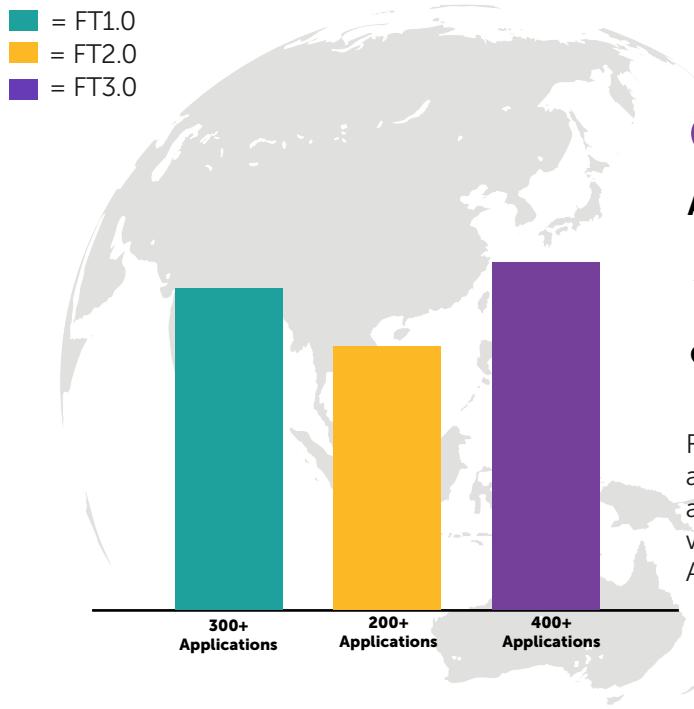
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Growing Our Focus

From Malaysia to Asia Pacific

FutureTech 1.0 (2019) and FutureTech 2.0 (2021) were focused on the Malaysia startup ecosystem. As part of the continuous journey to nurture tech-driven startups and its ecosystem, the programme expanded its reach to the Asia Pacific region in FutureTech 3.0 (2023).

Demographics of Applicants



900+
Applicants

27
Countries

FutureTech has attracted over 900 applicants, 96% of whom are from the APAC region.



"FutureTech 3.0 was our first attempt to venture out of Malaysia into APAC region and we continuously strive to further our reach."

Aida Faizura
Head, Technology Accelerator
PETRONAS Ventures

Demographics of Cohorts

FutureTech has accelerated 65 startups from 5 countries, 79% of which are from Malaysia.

FT1.0 = 100% Malaysia headquartered
FT2.0 = 100% Malaysia headquartered
FT3.0 = 44% Malaysia, 36% Singapore, 12% India, 4% Indonesia, 4% Australia

65
Startups

5
Countries

3
Cohorts



PETRONAS FUTURETECH

How We Run

FutureTech is designed to ensure that participating startups receive timely support and guidance throughout their journey. Here's an overview of how the programme runs from selection to graduation:

Selection Process & Criterion

1

Open Call for Applications

We initiate an open call for applications, inviting startups to apply via our website. Startups are required to meet specific eligibility criteria, including having demonstrated commercial traction, and aligning with FutureTech's focus areas.

2

Application Review and Shortlisting

All applications are reviewed by a panel consisting of PETRONAS and its corporate and ecosystem partners. A shortlist of the most promising startups is created, and these startups proceed to the next stage of the selection process.

3

Pitch Day

Shortlisted startups are invited to present their pitches to a panel of jury members comprising business unit mentors from PETRONAS and our corporate and ecosystem partners. The most high potential startups that matches the business fit are selected to join the accelerator programme.

> "As a Pitch Coach, I experience their growth. They were able to prepare the content of their pitches to be clear and inspiring for the audience, and they developed confidence and dynamic presence when delivering their pitch. What impress me the most was the diversity of the teams. It was an amazing cohort of incredibly talented and dedicated people."



Peter Browne
Startup Pitch Coach,
Intangible Communications

> "As a PETRONAS business unit mentor, my involvement in the FutureTech Accelerator programme has been a rewarding experience. Throughout the programme, I've had the privilege of guiding startups through their journey, providing insights and support to help them grow further. This allows me to see firsthand the growth and development of these startups. It's incredibly fulfilling to witness their progress and to contribute to their success."



Mohammed Syarin Mohammed Yussof
Business Mentor, PETRONAS



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Accelerator Programme Structure

Immersion with Corporate Partners



- The programme begins with an immersion where startups are introduced to the programme, and take part in sessions to **meet with the business unit mentors** from PETRONAS and its partners.
- During this time, **corporate partners also host site visits to their testbedding facilities** for startups to familiarise themselves with the opportunities, support and resources available to them.
- Past site visits include PETRONAS' plants in Kerteh and Melaka, DRB-Hicom's Proton City in Tanjung Malim, Tenaga Nasional's Research Center in Bangi, Sembcorp's headquarters in Singapore, the MRANTI Park in Kuala Lumpur and a tour of Singapore's startup hub at One North.

Masterclasses and Workshops

- Throughout the accelerator, startups attend **timely masterclasses and workshops** led by industry experts.
- These sessions cover a **wide range of topics essential for startup growth**, including commercial business models, go-to-market strategies, impact measurement, and fundraising.
- These sessions were held in a variety of formats, including in-person or hybrid using platforms such as Zoom or Butter, and tailored to address the specific needs and challenges of the overall cohort.



Proof of Concept (POC) Discussions



- Where there is a mutual fit, startups may also have the opportunity to immerse themselves in real-world business environments through **collaboration discussions on potential testbeds or pilots** with PETRONAS and its corporate partners.
- This phase involves **validating and refining technologies, products, and business models** with feedback from industry experts and potential customers.



Networking and Partnerships



- The programme facilitates numerous networking opportunities, **allowing startups to connect with investors, industry leaders, and more** through access to pitch events and conferences (e.g. Energy Asia 2023), alumni networking, corporate and investor networking and mentor-sharing sessions.
- Startups were encouraged to further expand on these conversations to **develop strategic partnerships and business opportunities**.

Demo Day

- The programme culminates in a Demo Day where startups **present their stories of success and innovations** to an audience made up of PETRONAS and its partners, investors, industry experts, and stakeholders in the ecosystem.
- Demo Day serves as a platform for startups to **secure funding, partnerships, and further support** to scale their businesses.

How We Amplify

Amplifying the impact and outcomes of the startups is a core objective of FutureTech. Post-accelerator, we continue to support the startups through our sustainable ecosystem support, with a strategic mix of events, media engagement, follow-on funding, and other resources to keep our startups going. Here's how we amplify the potential and visibility of our startups:

Events and Conferences

15 Conferences

Startups in the programme are provided with access to major industry conferences and events. This allows them to learn more insights about their industry and network with industry leaders.

The programme also facilitates exhibition and open-mic pitch opportunities at conferences where startups can showcase their products and solutions to an international audience.

Strategic conferences that the programme has been involved in with the startups include **Experience Ventures 2022 and 2024, Energy Asia 2023, Oil and Gas Asia 2023 and Offshore Technology Conference Asia 2024.** where a number of our companies were able to exhibit, pitch and speak at these events.





Follow-On Investments and Funding

4 Investments

As the investment arm of PETRONAS Ventures, **Twin Towers Ventures (TTV)** is also closely tied to the programme.

Beyond funding, Twin Towers Ventures team members are mentors for the programme and work closely with the startups ahead of their fundraising journey to evaluate their pitches, provide critical mentorship and even help them with prospective connections to other investors.

To date, Twin Towers Ventures has made follow-on funding into four of the startups post-programme: **Aerodyne, Braintree Technologies, SOLS Energy and EV Connection.** Selected startups were also selected for Khazanah's Dana Impak and Cradle's funding (grant recipients).

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TTV TWIN TOWERS VENTURES

KHAZANAH NASIONAL

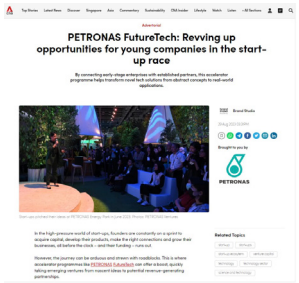
Cradle — Creating. Leading. Startups. —

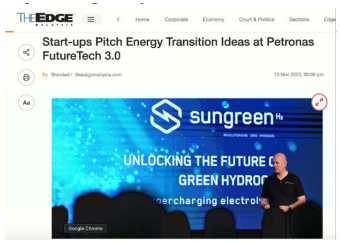
Media Features

30+ Media Features

Regular press releases to announce significant milestones in the programmes, such as the announcement of each cohort and the outcomes of Demo Day.

We also collaborate with prominent media outlets to feature our startups, highlighting their innovations and achievements. These partnerships include **BFM 89.9, Malaysia's business radio station** and **Southeast Asia tech media e27**.







Market Immersion Programmes

2 Immersion Programmes

Award recipients are invited to take part in market immersion programme to innovation hubs i.e **Silicon Valley** (2020), **Thailand** (2024). These trips provide exposure to regional markets in Asia Pacific, connections to potential local partners, and exclusive visits to leading companies, research institutions, and innovation spaces.

In Thailand, the 4-day market immersion programme, the startups connected with **30+ key stakeholders including conglomerates, corporate venture capital, investors and government agencies**.







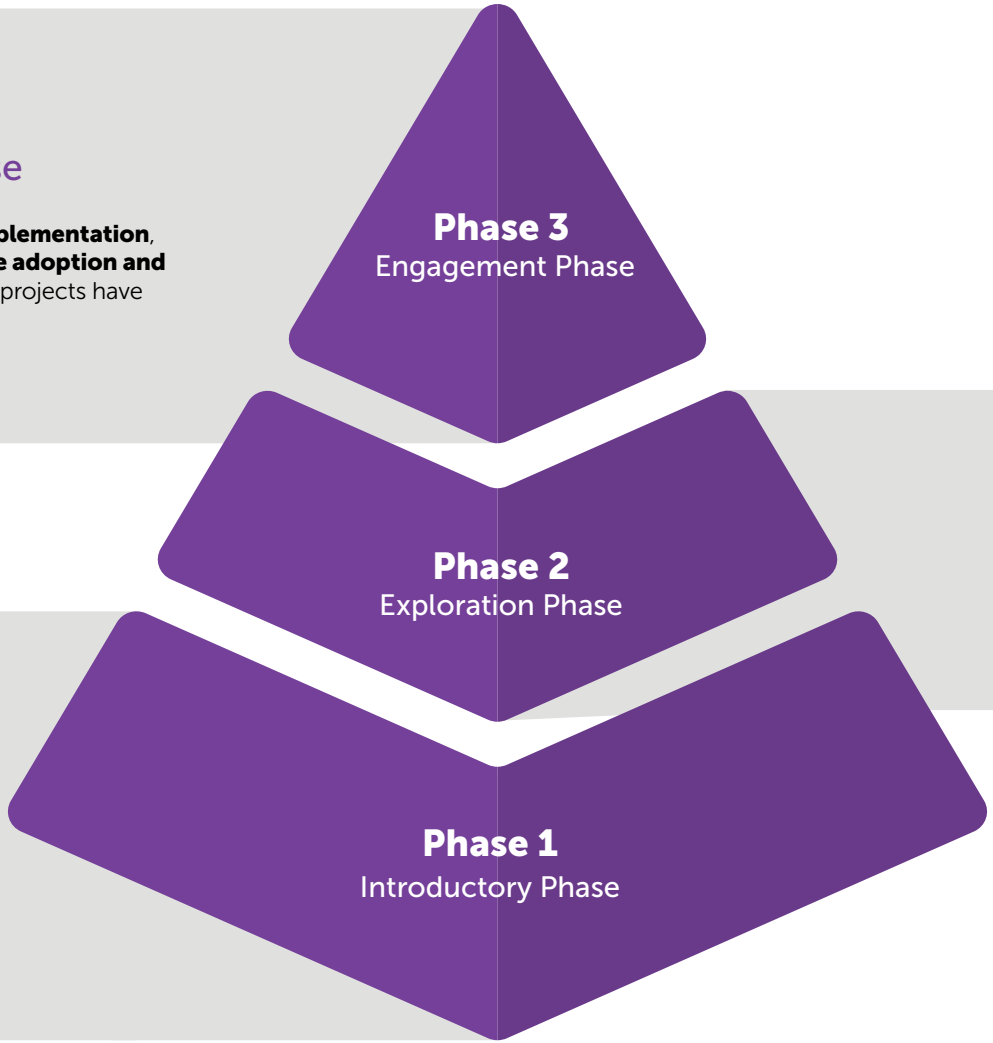
Strategic Deployment

Deployment is a crucial phase in the startup journey, where innovative ideas are transformed into impactful solutions that reach wider markets and generate significant value. At FutureTech, we emphasise the importance of fostering pilots and collaborations opportunities to help startups achieve scalability and market penetration.

To build successful deployments with PETRONAS and our pool of corporate partners, startups go through three key phases:

Phase 3: Engagement Phase

We **monitor the pilot project through implementation**, with the goal to lead to **potential full-scale adoption and deployment**. To date, over 20 deployment projects have been initiated.



Phase 2: Exploration Phase

Our goal is to work with our startups and respective business units to **align on potential pilot projects.** This is done through detailed discussions, technical evaluations and proposal developments.

Phase 1: Introduction Phase

The objective is to help **facilitate initial contact and explore mutual interests** between our startups and potential partners to identify fit. A total of 280+ introductions and conversations have taken place across three cohorts.

How We Deploy

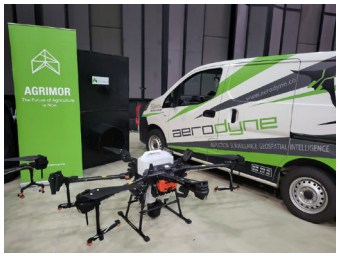
PETRONAS Ventures has seen strategic deployment between the startups and Business Units maturing at various stages.

Core

More Energy, Less Emissions

aerodyne

Aerodyne's DT3 (drone technology, data technology & digital transformation) enterprise solutions deployed in various PETRONAS applications i.e. HSE Surveillance, Methane Detection, Confined Space Detection, Land Survey, Security Surveillance, etc.



inference

Collaboration with PETRONAS Research Sdn Bhd to commercialise and scale its Visual SPOT AI devices used during plant turnarounds, reducing site supervisor cost and increasing safety efficiency.



BDM

Pilot project on predicting compressor failure rates using existing sensors at one of PETRONAS platforms.



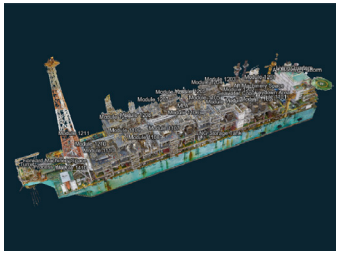
KRENOVATOR

Proof of concept and pilot work to source, train and supply gig talents to PETRONAS Digital Sdn Bhd using Krenavator's digital outsourcing and recruitment services.



GRAFFIQUO

Asset Digitalisation - 3D Modelling innovation from proof of concept to pilot project implementation with Gas Business, providing seamless navigation experience for online asset surveillance and maintenance.



POMEN

By leveraging data-driven approaches, the POMEN platform has significantly reduced man-hours for the procurement team, optimising workflows and expediting tasks for improved efficiency of 50 PETRONAS' fuel terminals.



New Business

Capturing New Growth Opportunities

Strategic partnership between EVC x Gentari enables access to leading capabilities in charge point installation and maintenance to support Gentari's aspiration of having 25,000 charging points in APAC by 2030.



Offering "Home Scape" solutions package for PETRONAS employees to solarise their residential homes.



Testing of Sungreen's hydrogen electrolyser components by PETRONAS Research Sdn Bhd.



Collaboration with PETRONAS Research Sdn Bhd to scale its Mobile Hydrogen Refueling System from proof of concept to field trial in Putrajaya, supporting the Nation's initiative towards sustainability and Net Zero Carbon Emissions (NZCE).



Sustainability & Net Zero Carbon Emissions

Pathway to Net Zero

Boom Grow harnesses precision farming technology to deliver clean greens that are at the height of nutrition and taste whilst being kind to the planet. Boom Grow's salad is served at PETRONAS Leadership Centre (PLC), Bangi on their daily buffet menu.




PETRONAS
FUTURETECH 3.0
Scaling the next generation of technology startups in Asia Pacific
DEMO DAY
31 OCT 2023 | EXHIBITION 6A & 6B, KUALA LUMPUR CONVENTION CENTER
PETRONAS
MYSTARTUP SELECTION AWARDS
RM 10,000
Cradle

Our Impact

Our Achievements & Outcomes

FutureTech has made progressive strides in driving innovation, fostering entrepreneurship, and creating sustainable impact across the programme. Beyond just supporting the startups in scaling their innovations, the programme also creates a positive socio-economic impact to the startup community through education and skill investment as well as fostering tech-driven innovations that support the United Nations' Sustainable Development Goals (SDGs).

The following key impact statistics are a reflection of the collective achievements of the cohort, encompassing their journey within and beyond FutureTech accelerator programme. While FutureTech has contributed to these successes through its support and resources, these outcomes are also shaped by the participant's efforts, external opportunities, and subsequent endeavours. This consolidated data is not intended to solely attribute these achievements to the FutureTech programme.

Impact to Startups

90%

Ventures scaled

90% of the startups that participated in the programme are still active and have continued to scale post-programme, demonstrating the sustained impact of the support they have received from FutureTech and the broader ecosystem.

Impact to Sustainable Development



The startups in the cohorts are actively addressing 9 of the 17 United Nations SDGs, reflecting their commitment to driving meaningful social, environmental, and economic impact.

Impact to Ecosystem

20

Partners across APAC

The FutureTech programme has successfully onboarded 20 strategic corporate and ecosystem partners across the Asia-Pacific region, fostering a collaborative ecosystem that supports innovation, growth, and cross-border opportunities for participating startups.

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Fuelling Business Growth & Impact

FutureTech has played a significant role in supporting the business trajectories of its participating startups. By providing robust support, strategic guidance, and access to resources, the programme has contributed to the growth of these startups. Additionally, the collective support of the broader ecosystem has been crucial in helping these startups achieve remarkable business milestones post-programme.

FutureTech fielded a survey to all 65 companies across three cohorts between March to April 2024, out of which thirty seven (56%) responded.

90% Business Partnerships

External partnerships have been instrumental in providing startups with opportunities to collaborate with industry leaders, access new markets, and enhance their business models.

44% Market Expansion

Market expansion for the startups has been facilitated through new funds raised to support their growth, access to new markets by partners and the programme's support in creating new opportunities for the startups.

92% Revenue Generating

The high rate of revenue generation amongst startups is significant as many companies have B2B commercial models, and are deep-tech companies that require a significant amount of research and development for their technology to get off the ground.

49% Raised Funding

Startup funding includes venture capital firms, angel investors, and corporate venture capital funds. The programme's extensive network and investor connections also help startups to secure the necessary capital to scale their operations.

23% Developed Patents

Some startups have developed patents, showcasing their innovation and commitment to creating proprietary technologies in the deep-tech space. Startups also stand a better chance at strengthening their market position and competitive edge.

43% Awards Won

These awards and accolades have provided significant validation and visibility to the startups, helping to boost their credibility and attract further opportunities.



"The strategic partnership with PETRONAS reflects Khazanah's commitment in driving corporate collaboration in Malaysia's venture capital ecosystem. Under Dana Impak, a key pillar under our Advancing Malaysia strategy, we aim to connect startups and corporates to drive innovation and deliver significant impact in their targeted industries."

Bryan Lim
Executive Director, Head, Dana Impak and Head, Healthcare, Khazanah Nasional



"With our mission to drive disruptive innovation, we're excited to be part of PETRONAS FutureTech. Through this programme, we expanded our global open innovation initiatives and explore further opportunities to collaborate with innovative startups."

Keith Noh
ZERO1NE Team Leader, Global Strategy Officer, Hyundai Motor Group

Developing ESG Impact

FutureTech is committed to driving **Environmental, Social, and Governance** (ESG) impact through its support of innovative startups. The programme aims to contribute to broader societal goals and foster positive change through our portfolio of startups that are actively **addressing some of the most pressing global challenges** in line with the United Nations Sustainable Development Goals (SDGs). Notably, 57% of the startups are tackling at least one SDG, and more information about their contributions can be found in the Annex section.

Here, we highlight the top three SDGs that our startups are contributing to:



Dr. Suraya Abdul Rashid
Co-founder and Chief Scientist, Qarbotech



Lennise Ng
CEO & Co-founder, Borong (formerly Dropee)

28% **Female Founded or Led**

15% **University Spin-offs**

7 AFFORDABLE AND CLEAN ENERGY

SOLS ENERGY

Affordable and clean energy is crucial for sustainable development and improving the quality of life. Many of our participating startups are at the forefront of developing innovative solutions that contribute to this goal:

- **Renewable Energy Technologies:** Startups are creating advanced technologies for harnessing solar, wind, and other renewable energy sources, making clean energy more accessible and affordable.
- **Energy Efficiency Solutions:** Innovative approaches to energy management and efficiency are being developed, reducing energy consumption and lowering carbon footprints.
- **Energy Access:** Startups such as **SOLS Energy** are working on solutions to provide reliable and affordable energy access to underserved and remote communities, ensuring that clean energy benefits reach everyone.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Augmentus robotics

GRAFFIQUO

Industry, innovation, and infrastructure are the backbone of a sustainable economy. Our startups are driving advancements in this area through their cutting-edge technologies and innovative business models:

- **Smart Infrastructure:** Development of intelligent infrastructure solutions such as Graffiquo's technology that enhance efficiency, connectivity, and resilience in urban and rural settings.
- **Industrial Innovation:** Startups like **Augmentus** are pioneering new manufacturing processes and industrial technologies that improve productivity while minimising environmental impact.
- **Tech-Driven Solutions:** Emphasis on digital transformation and the integration of advanced technologies such as IoT, AI, and blockchain to revolutionise traditional industries and infrastructure.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Magorium

MYCL

ENTOMAL

Promoting responsible consumption and production patterns is essential for sustainable development. Our startups are leading the way with innovative solutions that address this critical goal:

- **Sustainable Products:** Creation of products and services such as **Mycotech's** mushroom leather that are designed with sustainability in mind, using eco-friendly materials and processes.
- **Waste Reduction Technologies:** Development of technologies such as **Magorium** that minimise plastic waste through recycling, or through upcycling like **Entomal**, and efficient resource management.
- **Circular Economy Models:** Startups are implementing circular economy principles, designing systems where products and materials are reused, repaired, and recycled, significantly reducing waste and resource consumption.

PETRONAS FUTURETECH

An Interconnected Ecosystem

"FutureTech is supported by a diverse and robust network of stakeholders, each playing a critical role in fostering innovation and enabling the success of participating startups."

20
Regional Corporate & Ecosystem Partners

80+
Industry Mentors

80+
BU Mentors

9 Corporate Partners

gentari · TENAGA NASIONAL · DRB-HICOM · KHAZANAH NASIONAL · TM · Vitol · Sime Darby Plantation · HYUNDAI · sembcorp

Our corporate partners play a pivotal role in supporting and scaling the startups. These partners provide invaluable resources, industry insights, and strategic opportunities that help startups navigate their growth journey and achieve significant milestones.

80+ Business Unit Mentors

Business Unit (BU) mentors are integral members of the PETRONAS and corporate partner teams. These mentors bring deep industry knowledge, technical expertise, and an understanding of the internal workings and strategic goals of their respective organisations.



PETRONAS FUTURETECH

160+ Industry Mentors and Coaches

Industry mentors and coaches bring a broader perspective from various industries and entrepreneurial backgrounds. These mentors offer strategic guidance, helping startups refine their business models, enhance their go-to-market strategies, and overcome operational challenges.





"We are a strong advocator for other GLCs, corporates and ecosystem players to partner with us in spurring the ecosystem."

Fahmi Azril
Head, Ecosystem & Partnership, PETRONAS Ventures

11 Ecosystem Partners

MRANTI · MDEC · MiGHT · Cradle · National Technology & Innovation Sandbox · Microsoft · MY STARTUP · aws · SGINNOVATE · Leave a Nest · TCS Tata Consultancy Services

These partners provide ecosystem expertise, regulatory and market access advisory, complimenting the efforts of our corporate partners.

Through our partners and network, our startups get access to four pillars of support:

Access to Corporates

Access to Network of Mentors

Access to Investments and Funds

Ecosystem Support

The programme and its startups are supported by over **300 individuals made up of corporate domain experts, startup mentors, seasoned entrepreneurs, investors** and other mentors and coaches that contribute valuable perspectives, insights and applicable knowledge to help our startups succeed.







"Being at the forefront of the energy transition, TNB plays a pivotal role in propelling its advancement - a focused approach on collaboration, innovation and talent is imperative to enable it. TNB recognises that PETRONAS FutureTech provides an unparalleled avenue for achieving this objective."

Datuk Ir. Megat Jalaluddin Megat Hassan
Chief Executive Officer,
Tenaga Nasional Berhad



"TM as the enabler of Digital Malaysia will work closely with our corporate partners in PETRONAS FutureTech towards accelerating the digital economy by developing our local technopreneurs. - FutureTech 2.0 (2021)"

Imri Mokhtar
Managing Director / Group Chief Executive Officer,
Telekom Malaysia



"We had the opportunity to mentor startups in Cohort 2 and learned alongside other corporate partners supporting their growth to develop impactful solutions. We are glad to be part of this initiative, driving innovation and sustainability together with PETRONAS and the startups."

Nurliyana Ruzlan
VP II, Innovation,
SD Guthrie (formerly Sime Darby Plantation)



Selected Company Highlights

Meet Our Startups

FutureTech has supported 65 remarkable startups, each making significant strides in their respective industries. These startups are driving innovation, creating sustainable solutions, and making a tangible impact on the world.

In this report, we have selected a few standout startups to spotlight their inspiring impact stories, showcasing how they are leading the way in shaping a brighter and more sustainable future.

PETRONAS FUTURETECH

Aerodyne

Transforming Industries with Drones

Aerodyne Group specialises in drone technology, data technology, and digital transformation (DT3), providing cutting-edge solutions that address complex industrial challenges. The company has developed proprietary technologies that leverage artificial intelligence (AI) and autonomous drones to optimise large-scale data operations, analytics, and process efficiency across various sectors.

36% reduction
in carbon emissions with Aerdoyne's drones

80% less water
used per hectare in agricultural operations

70% reduction
in pesticide use through precision agriculture

32% of Aerodyne's
campus energy comes from renewable sources

100% sustainable
battery recycling



> "Our vision of a drone economy is a future where drones become an integral part of everyday life, enhancing everything from safety to logistics, and even enabling virtual tourism."

Kamarul Muhamed
Founder and CEO

Innovative Technologies for Enhanced Operational Efficiency

Aerodyne's solutions are designed to transform how industries operate and deliver value. Their drone technology, powered by AI and machine learning, enables rapid data collection and analysis, providing actionable insights for optimisation. The company's AI-driven platforms, such as Vertikaliti, harness drone data to deliver deep analytics for asset management and operational improvements.

Driving Sustainable Industrial Transformation

Aerodyne's commitment to sustainability is evident in its advanced air mobility solutions and precision agriculture initiatives. The company is developing heavy-lifter drones for logistics operations, which can replace traditional, more costly methods and support the delivery of medical supplies in remote areas. In agriculture, Aerodyne's AI-powered solutions have secured over 300,000 hectares for major industry players in Malaysia, with plans to expand into Indonesia and India.

Strategic Investments and Future Growth

Aerodyne's growth is fueled by significant investments, such as the USD 30 million funding round led by PETRONAS. This investment will support the company's expansion into new markets in Europe, Africa, Latin America, and South Asia, as well as further technological advancements. Aerodyne aims to raise an additional USD 100-200 million to continue its global trajectory and technology development.



PETRONAS FUTURETECH

Beep Technologies

Accelerating Electrification in Singapore and Beyond

beep

7 AFFORDABLE AND CLEAN ENERGY

Voltality, powered by Beep, is an eMobility platform designed to streamline charging for businesses and drivers, featuring a white-label embeddable web-app and API that remove integration barriers and promotes a cashless, connected future.

1,000+ drivers
on the VoltPOS/VoltNow/VoltNet network

31,500 charging sessions
processed the VoltPOS/VoltNow/ VoltNet network

4,000 charging stations
in the VoltPOS/VoltNow/VoltNet network

130 charging sessions
per day on the VoltPOS/VoltNow/ VoltNet network

70% of Singapore chargers
is covered through VoltNet



"By creating Southeast Asia's largest EV roaming network, Beep Technologies is not only facilitating a smoother transition to electric vehicles but also paving the way for a greener, more sustainable future."

Kristoffer Jacek
CEO & Co-Founder

Sparking Electrification Growth

Voltality by Beep Technologies is dedicated to accelerating electrification in Singapore and Southeast Asia. A strong proponent of building strategic partnerships, Voltality collaborates with government bodies, industry players, and technology partners to enhance its influence and expedite the adoption of electric vehicles and charging infrastructure. While revenue growth from these initiatives may take time, the company is committed to the long-term sustainability and success of its electrification efforts, acknowledging the necessity of patience and perseverance.

Seamless and Interoperable E-Mobility Payment

Voltality has partnered with industry leaders like Singapore Power, ComfortDelGro, ENGIE, Charge+ and other charging operators across Southeast Asia to transform the EV landscape with seamless, interoperable payment solutions. Promoting open payments, the company engaged key stakeholders, receiving insights and validation from industry experts, including a former director at the Energy Market Authority. Following a round of successful testing, Voltality is now ready to scale its solution to meet the diverse needs of commercial fleet market leaders.

Powering Up for EV Adoption in Southeast Asia

The journey towards widespread EV adoption in Southeast Asia presents unique challenges, such as establishing a unified charging infrastructure across diverse dialects and an evolving market landscape. Overcoming these hurdles is essential for seamless mobility experiences for EV drivers across borders. Balancing network expansion and strategic partnerships within the e-mobility ecosystem is crucial. Thailand is emerging as a promising EV manufacturing hub, while changes in Malaysia's subsidy policies may influence early adoption among middle- and upper-income groups.



PETRONAS FUTURETECH

Braintree Technologies

Transforming Malaysian Agriculture

Braintree Technologies

2 ZERO HUNGER

Braintree Technologies aims to deliver consistent and hassle-free produce through advanced agricultural robots that streamline processes and enhance produce quality. Through the integration of AI and robotics, Braintree offers tools to help farms improve efficiency, reduce labour challenges, and foster sustainable farming practices.

8% reduction in fertilisers
due to the precision technology

8% cost savings
of animal feed developed

400%
improved labour efficiency

10 Autonomous Fertiliser Sprayer Bots deployed

300 hectares palm oil plantation
covered by the Autonomous Fertiliser Sprayer Bot



"Our challenge is to make technology affordable for SEA farmers while remaining profitable in a region with low labor costs. We're innovating by creating multi-action robots to perform multiple tasks at once, maximising efficiency."

Arif Makhdzir
CEO & Co-Founder

Cutting-Edge Robots Boost Efficiency and Slash Costs

Labour inefficiencies in agriculture, exacerbated by the COVID-19 pandemic, pose significant challenges such as inconsistent performance and fluctuating demand. To tackle these issues, the Farmer-bot service by Braintree Technologies provide GPS-tracked fertiliser application and labour during peak seasons, ensuring precise operations and optimising productivity. Autonomous fertiliser robots further enhance efficiency and reduce costs by addressing labour shortages, thus stabilising agricultural operations.

Revolutionising Agriculture: Enhancing Efficiency and Sustainability Through Robotics

Braintree's advanced robotics provide significant advantages to plantation owners by reducing waste and enhancing efficiency. Through precise fertiliser application, these robots minimise excess usage, resulting in a MYR 40 per-hectare efficiency improvement. This conserves resources and boosts crop yields, offering substantial economic benefits. Additionally, Braintree supports sustainable agriculture by deploying robotic solutions for extra workforce support during critical harvesting seasons, integrating local gig workers to reduce environmental impact. This fosters economic growth and supports sustainable development in rural areas. Braintree is currently collaborating with SD Guthrie (formerly known as Sime Darby Plantation) in deploying an autonomous fertiliser sprayer to ensure the fertilisation process is done efficiently and accurately at the palm oil plantations.

Tackling Agricultural Challenges in Margin and Labour Costs

While agri-tech adoption in Southeast Asia is lagging behind its global counterparts due to cheap labour, the COVID-19 pandemic has driven a shift towards tech-driven solutions for agricultural efficiency. However, the challenge remains in balancing affordability and profitability, with high initial costs hindering many farmers. Braintree Technologies is positioned to address these challenges, leveraging resources to drive sustainable agricultural innovation in the region.



PETRONAS FUTURETECH

Entomal Biotech

Harnessing Insects for Environmental Sustainability

ENTOMAL™ Insect For Environmental Sustainability

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Entomal Biotech is a leading startup addressing global challenges like food waste, emissions, and food security. Their mission is to transform waste into valuable resources using scalable solutions powered by black soldier flies (BSF).

5 EMBCs
deployed

2.8 tonnes
insect protein produced

18 tonnes
waste treated

3.5 tonnes
organic fertilisers produced

45 tonnes
emission prevented



"We are truly passionate about environmental sustainability, and we know that with our technology and proven track record, we can really bring a big impact to Asia."

Yanni Ching
Chief Commercial Officer

Entomal Biotech: Transforming Waste into Wealth for a Sustainable Future

Entomal Biotech is revolutionising waste management by offering innovative solutions that not only mitigate climate change but also enhance food security. As a pioneering waste management solution provider, Entomal Biotech leverages the power of black soldier fly (BSF) larvae to convert food waste into valuable resources like high-protein animal feed and organic fertilisers, closing the loop in the circular economy. With food waste being a major issue, particularly in Malaysia where 12,000 tonnes are discarded daily, Entomal Biotech provides an efficient, eco-friendly alternative to traditional waste disposal methods. Their solution not only diverts waste from landfills but also reduces carbon emissions, turning environmental challenges into opportunities for sustainable growth.

Scaling Impact: The Entomal Mobile Bioconversion System (EMBC) and Central Biowaste Conversion Plant

Entomal Biotech has developed two key innovations to scale its impact: the Entomal Mobile Bioconversion System (EMBC) and the Central Biowaste Conversion Plant. The EMBC is a decentralised mobile solution designed to treat food waste directly at its source. It is already being deployed at leading institutions like Taylor's University, Sunway Lagoon, Le Meridien PJ and Oasis International School, processing waste efficiently and converting it into valuable downstream products.

The upcoming Central Biowaste Conversion Plant will significantly enhance Entomal Biotech's capacity, processing up to **15 tonnes of food waste daily** using BSF technology. This plant will be a game-changer in the industry, enabling large-scale food waste treatment and production of high-value products like protein-rich feed and organic fertilisers.

A Future of Sustainable, Secure Food Systems

Entomal Biotech produces two valuable byproducts: **black soldier fly larvae**, a sustainable protein source, and **nutrient-rich frass**, an organic fertiliser. These innovations can revolutionise the animal feed industry, reducing reliance on crops like soy and corn while improving agricultural yields with organic inputs. By converting waste into valuable resources, Entomal is minimising food waste, cutting environmental impacts, and supporting sustainable food systems. It is not just about feeding animals—it's about **feeding the world more sustainably**, enhancing food security, and building a resilient, circular economy for both people and the planet.



PETRONAS FUTURETECH

EV Connection

Decarbonising Transportation

7 AFFORDABLE AND CLEAN ENERGY

EV Connection is a premier provider of sustainable energy infrastructure in Malaysia, specialising in EV charging and Solar PV systems. Their mission is to facilitate seamless EV travel between major cities through a tailored technology platform. As pioneers in EV charging, they are committed to advancing Malaysia's green industry through strategic partnerships.

600+ charging stations
across Peninsular and East Malaysia

50% reduction
in carbon emissions

30-60 minutes savings
average charging time

100+ EVs charging
at any given time on the JomCharge network

10,500+ charging sessions



"We believe that electric vehicles will be the next big thing just like how solar was for Malaysia. The idea is that electrification itself is not fully green if we don't ensure there's sufficient green energy is pumped into the electricity grid."

Lee Yuen How
Managing Director

Decarbonisation and Sustainability through EV

Electric vehicles (EVs) are vital for decarbonising transportation, offering a sustainable alternative to traditional fossil fuel-powered vehicles and reducing greenhouse gas emissions. However, their impact depends on the electricity source. Embracing renewable energy like solar, wind, and hydroelectric power is crucial for sustainable EV charging infrastructure. In Malaysia, education initiatives are essential for empowering consumers to choose sustainable transportation. Providing information about the environmental benefits, cost savings, and technological advancements associated with EVs is vital for adoption. Collaborative efforts among government, industry, and environmental groups are key for targeted campaigns, positioning Malaysia as a leader in cleaner transportation solutions.

Partnering for Expansion and Innovation

EV Connection **has been pivotal for their vision to advance the EV market and promote sustainable transportation.** This collaboration aligns with Malaysia's net zero goal to drive towards an eco-conscious future. A significant achievement is the 350kW DC charger hub with nine stations, demonstrating EV Connection commitment to expanding their EV infrastructure nationwide. Joint efforts led to modular battery deployment solutions, cutting deployment time by 90%, enhancing efficiency and scalability. Through continued innovation and partnerships, EV Connection aims to increase EV market share, fostering sustainable mobility and a greener transportation ecosystem.

Interoperability for EV Charging

Prioritising the customer experience is crucial for driving EV adoption in Malaysia, and this requires seamless interoperability among EV charging operators to ensure convenience and accessibility for the end users. **As the Malaysian EV landscape evolves, collaboration amongst EV players becomes paramount, and this sets the basis for the strategic alliance between Gentari, ChargeEV, and EV Connection. This partnership heralds a new era of synergy in EV charging infrastructure, where EV users can now access over 1000+ charging points via a single, user-friendly application.** Representing 70% of the nation's EV charging points, this partnership demonstrates the transformative impact of unified action in advancing the EV revolution.



PETRONAS FUTURETECH

Graffiquo

Advancing Spatial Exploration

GRAFFIQUO

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Geographic Information System (GIS) software provider Graffiquo's Visual Intelligence Centre (VIC) transforms data visualisation and analysis, and offering a user-friendly interface for handling extensive data. Integrating 3D GIS, their technology supports smart cities and industries with vast assets, such as oil & gas, utilities, property, and construction. This enables better decision-making in areas like planning, environmental assessments, infrastructure management, and asset monitoring in complex environments, including pipelines, power grids, construction sites, and large-scale property developments.

51 projects
completed

MYR 100,000
average cost savings
realised by organisations

35% average time saved
by urban planners

1 to 7CM accuracy/
precision achieved
by the 3D visualisation
intelligence tool

25% reduction
in project turnaround time

15% increase
in operational efficiency



"Our vision is to integrate cutting-edge technology with practical applications, empowering industries such as oil and gas to achieve higher efficiency, safety, and informed decision-making."

George Tang
Founder - Director - Group CEO

Using 3D Technology for Urban Planning and Development

Advanced 3D digitising technologies are revolutionising urban planning by providing accurate, real-time data that enhances decision-making and project execution as demonstrated by the United Nations partnership. Through platforms like VIC, city planners gain access to immersive 3D models that offer a comprehensive view of landscapes, infrastructure, and environmental factors. This level of detail enables better planning for infrastructure development, transportation networks, and public spaces, ensuring more efficient land use and sustainable growth. Moreover, the ability to simulate future scenarios improves disaster preparedness and resilience planning. VIC's technology empowers governments and local councils by fostering collaboration, transparency, and equipping them with the tools needed for informed, long-term urban development strategies.

3D Technology for Operational Excellence in Oil and Gas Industry

Graffiquo's participation in FutureTech 2.0 has enabled the company to prove its capability via proof of concepts and pilot projects to develop 3D reality models and virtual walkabouts of selected PETRONAS facilities. This include the Regasification Terminal in Melaka, Gas Compressor Stations in Segamat and Kuantan and PETRONAS Floating LNG vessels. The virtual walkabout platform allows remote maintenance and surveillance, cutting travel costs and reducing carbon footprints.

3D Mapping to Save Lives

In addition to its business pursuits, Graffiquo is committed to humanitarian efforts to save lives and mitigate natural disaster effects. In 2022, the startup partnered with Cauayan, a typhoon-prone city in the Philippines, to enhance disaster management using drones and digital twin software. This initiative aimed to improve disaster recovery planning through high-resolution aerial surveys for quick damage assessment and vulnerable area identification. The digital twin software provided real-time urban simulations, aiding city officials in emergency response coordination. Graffiquo's partnership significantly boosted Cauayan's resilience, demonstrating its dedication to leveraging technology for safer, more resilient communities.



PETRONAS FUTURETECH

Kazam

Enabling E-mobility on a Global Scale

kazam

7 AFFORDABLE AND CLEAN ENERGY

Kazam is an electric vehicle charging solutions provider that puts its agnostic platform to use in creating India's leading smart and cost-effective EV charging infrastructure. The company emphasises strategic alliances with fleets, Charge Point Operators (CPOs), Resident Welfare Associations (RWAs), and Original Equipment Manufacturers (OEMs). With over 15,000 devices integrated into Kazam's platform, it is building a robust charging ecosystem.

100,000+ users
on the Kazam app

15000+ charging stations
built across India

11+% of India's geography
covered through Kazam charging network

1.7 Million+ charging sessions
have been conducted at Kazam stations to date

8600+ tonnes reduction
in carbon emissions (calculated as per industry standards)

$5 Million cost savings
by EV owners



"We have written the Indian standard for interoperability for both hardware and software. Currently we are working on UEI (Unified Energy Interface), which is interoperability on the cloud and payments for energy."

Akshay Shekhar
CEO & Co-Founder

Accelerating EV Adoption With Seamless Software

Electric vehicle (EV) adoption in India has surged in recent years, with over 200,000 vehicles sold each month, driving the need for seamless software solutions that are crucial to accommodate this growth. With Kazam facilitating the charging of 4,000 vehicles monthly, their integrated software solutions strive to enhance user experience and accelerate the transition to a greener future.

Breaking Through: Unleashing Electric Fleet Adoption in India

Kazam's partnership with BigBasket to transition 20% of their fleet to EVs underscores the growing demand by corporations to electrify their fleet. Yet while adoption of EV fleets is expanding, charging infrastructure development has not kept pace, necessitating a rapid scale-up to meet growing demand. Kazam is thus adopting a dual-focused strategy to accelerate EV fleet adoption in India, working on enhancing public charging infrastructure while leveraging the untapped potential of captive charging facilities for company-specific EV fleets.

Unveiling UEI: Empowering Seamless Energy Exchange Across the Board

Kazam is spearheading the development of the Unified Energy Interface (UEI), a transformative solution akin to the Unified Payments Interface (UPI) in finance. The UEI addresses interoperability challenges in EV charging infrastructure and grid demand response, streamlining payment processes and transaction interoperability across various charging networks. This system allows EV drivers to navigate charging infrastructure effortlessly, regardless of vehicle brand or network affiliation. As Kazam advances electric mobility, the UEI exemplifies their dedication to innovation and interoperability, promising a more accessible, efficient, and sustainable transportation landscape.



PETRONAS FUTURETECH

Krenovator

Educating the Future

KRENOVATOR

8 DECENT WORK AND ECONOMIC GROWTH

Krenovator is an AI-powered tech talent platform dedicated to empowering the Southeast Asian tech community. The company bridges the gap between businesses and top-tier tech professionals by providing a comprehensive solution for skill development, talent acquisition and workforce optimisation.

36% increase
in women's tech employment

70% of tech talent
sourced from rural areas

25% faster
tech hiring with Krenovator's AI tools

40% increase
in youth tech job placements

30% cost savings
for companies using Krenovator's outsourcing services



"We feel the need to fill the gap. Hence, we create a tech talent community where individuals can get free coding classes, training, and monthly events, along with community support from peers and mentorship from industry experts. Everything is online, making it accessible for everyone."

Mahadhir Yunus
CEO

Bridging the Skills Gap: Fuelling Careers and the Economy in Malaysia

Krenovator focuses on bridging the skill gap with their tailored outsourcing and recruitment services for small and medium-sized businesses (SMBs). Their success is highlighted by their collaboration with Morpheus Labs in Malaysia, demonstrating Krenovator's ability to provide crucial talent solutions. Additionally, Krenovator's commitment to accessible learning has made an impact on the lives of individuals, such as an aerospace engineering graduate who pivoted to coding during COVID-19. **Post FutureTech, Krenovator was also given the opportunity to conduct proof of concept and pilot works to source, train and supply gig talents to PETRONAS Digital Sdn Bhd.**

The Emergence of Community-driven Learning

A global shift in education highlights the need for collaboration and the value of everyone's insights. Krenovator has embraced this shift with community-driven classes where local experts lead hands-on activities, encouraging participants to share knowledge and experiences. This interactive approach facilitates quick problem-solving and real-time learning, effectively tackling practical challenges.

Expanding Horizons: Innovations and Future Plans

Krenovator's push for tech doesn't stop at talent placement. The company is exploring the integration of advanced technologies such as artificial intelligence and machine learning into their platform to better match candidates with job opportunities. Future plans include the development of an AI-powered career guidance tool to provide personalised career paths and skill recommendations for tech professionals. Their forward-thinking approach ensures Krenovator stays at the forefront of the tech recruitment industry, continually adapting to meet the evolving needs of the digital age.



PETRONAS FUTURETECH

POMEN

Digitising the Automotive Aftermarket

POMEN

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

POMEN clears the complex web of outdated systems in the auto-maintenance operations, from car to trucks or equipment industries. Their proprietary end-to-end software technologies helps to seamlessly transform business processes to eliminate bottlenecks, identify new revenue streams and make better decisions with data driven platform.

18 automotive businesses served across its platform

2 markets POMEN operate in (Malaysia & Indonesia)

10-12% reduction in turnaround time for end users

85% faster procurement in fleet efficiency



> "Our core mission is to advance digitalisation of automotive aftermarket, which we identified as one of the underserved market segments, ignored by most digitalisation industry players."

Syed Zulhilmi
CEO & Co-Founder

Improving Efficiency in the Automotive Industry With Data-Driven Solutions

Through a partnership with EON and its 30 service centres, POMEN integrated software has led to a notable 10-12% quarterly throughput increase. This collaboration underscores the efficacy of data-driven solutions in operational optimisation. **Moreover, POMEN has partnered with PETRONAS for 50 fuel terminals, shifting their procurement operations.** Utilising data-driven methodologies, the platform has saved hundreds of man-hours for the procurement team, streamlining processes and expediting tasks for enhanced efficiency.

Real-Time Lifecycle Management for Proper Maintenance to Reduce Pollution

Collaborating with telematics companies for fleet maintenance, POMEN's technology help with comprehensive life cycle management to significantly reduce pollution. Integrating vehicle maintenance data seamlessly into its platform enables real-time insights into fleet-wide carbon emissions, facilitating proactive environmental stewardship. This integration empowers fleet managers to continuously monitor emissions levels, making data-informed decisions to mitigate environmental impact. Prompt identification of vehicles with fault codes enables preemptive maintenance, averting breakdowns and minimising emissions associated with vehicular malfunction. This holistic approach optimises operational efficiency and aligns with sustainability goals by curbing pollution through proactive maintenance and real-time emission monitoring, demonstrating POMEN's environmental responsibility and enhancing fleet performance.

Customer-Centric Innovations

POMEN is also enhancing its customer relationship management (CRM) systems to provide a more personalised experience for users. With AI and machine learning, the CRM will offer predictive maintenance schedules and customised service reminders, ensuring vehicles are maintained proactively, thus enhancing customer satisfaction and loyalty. These initiatives are part of POMEN's dedication to not only digitise but also revolutionise the automotive industry and be a leading player in automotive maintenance and operation management for years to come.



PETRONAS FUTURETECH

SOLS Energy

Empowering Communities With Solar Innovation

SOLS ENERGY

7 AFFORDABLE AND CLEAN ENERGY

SOLS Energy was founded with the urgent need to combat climate change and reduce fossil fuel dependency. The company's core mission is to provide accessible, affordable solar energy solutions to empower communities and promote a greener planet through clean, efficient, and reliable solar technology.

2,600+ Orang Asli homes
powered with Pico Solar System

2,300+ houses
installed with solar

18.7 MW+ clean energy
installed on residential solar projects

RM13 Million savings
annually for customers
equivalent of 434k trees planted yearly



"We believe in harnessing the power of the sun not just to generate electricity, but to empower communities and drive sustainable change."

Raj Ridvan Singh
Founder and CEO

Empowering Sustainable Energy Solutions: Creating Social and Environmental Impact

As a greentech startup backed by PETRONAS, SOLS Energy positions itself as a key player in helping Malaysian and homeowners become more environmentally engaged. By making solar energy accessible to everyone, they are reducing Malaysia's reliance on fossil fuels, which helps cut down on pollution and lowers the country's carbon footprint. SOLS Energy is also creating green jobs and providing energy solutions to rural communities, ensuring that everyone benefits from cleaner energy. Overall, SOLS Energy is contributing to Malaysia's movement towards a greener and more sustainable future.

Diversifying Renewable Energy Adoption: SOLS Energy's 3 Impact Goals

As a social enterprise, SOLS Energy prides themselves in creating a system of solutions that improves the lives of people that come from different income groups and backgrounds. Energy transition is the primary service they provide, where they assist Malaysian homeowners in transitioning from powering their homes with fossil fuels to utilising renewable energy sources such as solar power. For every customer that transitions to green energy with them, they install a pico solar system in an Orang Asli / Orang Asal home, with the goal of lighting up every off-grid home. Lastly, they actively recruit and train individuals from the B40 category, with a special focus on the Orang Asli & Orang Asal communities, through the SOLS Solar Academy. Subsequently, they hire them and create well-paying green jobs that offer middle-class outcomes. **Their mission is to establish an equitable future for the underprivileged.**

Innovative & Quality-Driven Sustainable Solutions

SOLS Energy combines industry standard installations with quality workmanship. As they educate and train their own installers, they are able to ensure all team members are trained to meet industry standards and are certified. The company uses top-tier solar PV hardware and components in all installations. These components undergo rigorous testing and meet relevant industry standards for performance, durability, and reliability. Looking ahead, the company plans to scale its operations, with a goal of increasing deployment of solar systems and fostering a greener, more sustainable future for communities across Malaysia and beyond.



PETRONAS FUTURETECH

SunGreenH2

The Future of Hydrogen Production

sungreen H_2
REVOLUTIONISING ZERO EMISSIONS

7 AFFORDABLE AND CLEAN ENERGY

SunGreenH2 is pioneering lower-cost green hydrogen production through innovative nanostructured electrodes that optimise the hydrogen-oxygen splitting process. The company integrates advanced nanotechnology with efficient manufacturing to provide sustainable electrolyser solutions.

20% reduction
in energy consumption vs traditional methods

40% reduction in LCOH
(Reduction of 50% in capex and 20% in opex)

82% HHV efficiency
world leading, laboratory verified and field replicated

5 countries
electrolysers and electrodes sold in

10 tonnes carbon elimination
for one ton of SunGreenH2 Hydrogen



"As countries roll out hydrogen roadmaps and start to look at the economics, getting the cost down is absolutely vital. Making green hydrogen affordable for industries is at the heart of what we do."

Tim Rockell
SVP Business Development

Precious Metal Dependence in Electrolysis

The catalysts required for electrolysis, crucial in green hydrogen production, traditionally rely on precious metals like platinum, titanium, and iridium. These metals, known for their catalytic properties, are not only expensive but also scarce. Their depletion during the electrolysis process necessitates regular replacement, exacerbating supply issues. As the world aims to scale up green hydrogen production to combat climate change, the limited availability of these critical materials poses a significant bottleneck.

Developing a Breakthrough Solution

SunGreenH2 has developed a proprietary electrode technology that eliminates the need for precious metals in electrolysis, addressing scarcity and improving hydrogen production efficiency. This innovation enhances production rates, reduces energy consumption, and lowers both capital and operational expenditures through flexible, durable electrodes. SunGreenH2's technology represents a paradigm shift, offering a more cost-effective and sustainable approach to green hydrogen production, paving the way for scalable and accessible solutions globally.

Decarbonisation Through Green Hydrogen

Accounting for 7% of global CO_2 emissions, the steel industry is at the forefront of efforts to mitigate climate change. A transformative approach involves using green hydrogen, derived from renewable sources, to replace coke oven gas in blast furnaces. This shift not only reduces the industry's carbon footprint but also heralds a new era of environmentally sustainable steel production. SunGreenH2 has also partnered with Naturgy and the Canary Islands Institute of Technology (ITC) in launching a pilot project that will showcase their disruptive technology in the production of green hydrogen through advanced electrolysis. Through this partnership, SunGreenH2's advanced Anion Exchange Membrane (AEM) Electrolyser technology will scale to a 50 kW electrolyser in 2025, continuing the mission of making green hydrogen more accessible and affordable. In addition, PETRONAS Research Sdn Bhd is currently testbedding SunGreenH2's electrolysers and exploring potential synergy for collaboration.



PETRONAS FUTURETECH

Wildfire Energy

Transforming Waste Into Energy

WILDFIRE ENERGY

7 AFFORDABLE AND CLEAN ENERGY

Wildfire Energy specialises in gasification and waste-to-energy technology, having developed a proprietary gasification process that converts low-value biomass and waste into high-quality syngas for electricity generation and the production of fuels and chemicals.

98% conversion
of waste and feedstock into renewable energy, biofuels and construction materials

95% reduction
in landfilled waste volume as most of it is usable as feedstock

200MWh of electricity and industrial heat
from 120 tonnes per day

5,000kg of fuel cell vehicle or industrial spec hydrogen
from 120 tonnes per day

50% increase in recycling rate
working with material recovery facilities



"We can cost-effectively convert waste into energy products at a very much smaller scale. Traditional plants might need upwards of 750,000 people, whereas Wildfire Energy can do it from as small as 50 to 100,000 people in a town or a city."

Jamie Laurence Roodenrys
General Manager Business Development and Strategic Partnerships

Pioneering Waste-to-Energy Innovation With MIHG Technology

Global waste generation exceeds two billion metric tons annually and is projected to increase by 70% by 2050. Wildfire Energy addresses this issue with its Moving Injection Horizontal Gasification (MIHG) process, converting landfill-bound waste into high-value renewable energy products. This process produces synthesis gas ("syngas"), which can be used to create electricity, hydrogen, biofuels, and other essential fuels and chemicals, potentially revolutionising energy production.

Waste to Wealth: Unleashing Hydrogen Potential from Waste

Preserving our environment requires addressing major challenges, such as reducing the carbon footprint of energy generation and curbing societal waste. In response, Wildfire Energy has launched a pioneering initiative to redefine sustainable energy production. Central to this project is the innovative use of proprietary technologies that convert waste materials into energy. This process enables Wildfire Energy to generate hydrogen, a key clean energy solution, while maintaining a strong commitment to environmental stewardship by capturing and repurposing CO_2 emissions to achieve carbon neutrality.

Revolutionising Circular Economies

MIHG energy-from-waste plants have transformative potential that extends beyond energy production, serving as a cornerstone for a sustainable circular economy. The success and scalability of MIHG technology as the leading waste-to-energy/fuel solution depend on support from political, policy, economic, and commercial spheres. This collective backing is crucial for reducing costs, enhancing accessibility, and raising awareness of Wildfire Energy MIHG's ability to expedite net-zero objectives across waste, energy, and fuel sectors. Widespread adoption of MIHG technology could catalyse a paradigm shift towards a circular economy, where waste is repurposed as a valuable resource, fostering sustainability and economic prosperity.





The Way Forward

Looking Ahead

The FutureTech Accelerator Programme is a journey where collaboration at all stages within the startup ecosystem is essential for success.

PETRONAS is honoured and extends its deepest appreciation to the FutureTech corporate and ecosystem partners and startups for their time and commitment as we strive to rise to the challenge and realise our shared aspirations for a sustainable energy future.

Looking ahead, FutureTech will continue to focus on unlocking the potential of breakthrough technologies developed by startups, with the aim of driving the PETRONAS Energy Transition Strategy forward.

We will continue to do this in three approaches:

1. **Commitment to Sustainability**
   We will unlock and nurture innovative technologies that create sustainable impact, promote circular economy models, and support renewable energy solutions. This focus will accelerate the adoption of sustainable solutions across industries.

2. **Enhancing Industry Collaboration**
   We will strengthen our partnerships with like-minded and forward-thinking stakeholders committed to growing the ecosystem through collaboration and facilitating market access for startups.

3. **Accelerate Commercialisation of Startups**
   We will support startups in their expansion and engage in industry thought leadership to amplify the environmental and economic benefits of sustainable technologies.

With even stronger collaboration, we can continue to play our part to foster a culture of innovation and accelerate tech and sustainable progress for Malaysia and its people.



Annexe

The data and information about the startups presented in this Annex is derived from various sources, including survey responses from the startups, independent research or from their respective Demo Day booklets developed during their cohort.

Cohort 1.0

Startups	Country	About	Traction	SDG Goals Fulfilled
5Glite.io		5Glite is a promising solution to a series of challenges of the current 'chimney architecture' of IoT systems, reducing connectivity cost of devices, protecting data privacy and maximising the value of IoT data.	1. Target to launch product in Q2, 2020.	
AdEasy		AdEasy is an online platform that provides SMEs a marketplace to access all offline ad space in Malaysia.	1. Raised a total funding of $455K over 2 rounds 2. Therine Goh (COO) and Melissa Sim (CEO) recognised by Digital News Asia as one of the Digerati 50 3. Worked with over 90 brands, launching more than 180 campaigns	
Billplz		Billplz is a payment platform for merchants to pay and get paid fastest, at the lowest cost possible. It is the 'back-end' payment platform for many apps e.g. Boost.	1. Collection of RM5B GMV (Gross Merchandise Value) in 2023 2. Over 52K merchants using their platform across 16 payment partners	
Braintree Technologies		Braintree Technologies builds agriculture robots to help farmers grow consistent, hassle-free produce. Braintree is a PETRONAS investee company.	1. 1 million hectare of oil palm AI tree count & plant health drone data 2. 100 tons of chilli produced yearly 3. First commercial PO contract of oil palm robot in the world	SDG 2 Zero hunger SDG15 Life on land
datalaksa		Datalaksa builds marketing data warehouses fast on cloud platforms.	1. Google Cloud Marketing Specialisation 2. Awarded AWS partner 3. Launched datalaksa across 22 countries with partners	
DEsight		DEsight offers Edge AI Monitoring Solution at low cost, low bandwidth and low energy.	1. Product launched 2. Targets a 30% growth by end of 2020, with target revenue of MYR $3M 3. Target customers and partners are PETRONAS, Schenker, CJ Century and Port Klang	SDG9 Industry, innovation and infrastructure
borong formerly known as dropee		Borong (formerly Dropee) is a B2B eCommerce solution provider for suppliers to optimise the way they sell, distribute, and manage their products across their SME & retail customers.	1. Transacted more than USD $3B in GTV & USD $54M in revenue for FY2023 2. Servicing more than 140K retailers across 3 countries 3. Operating breakeven in home country	SDG 8 Decent work and economic growth
evc		EV Connection is a leading force in driving electric vehicle (EV) adoption across ASEAN, dedicated to building a seamless and electrifying future for the region.	1. 409 chargers serving Malaysia's EV community as of November 2023 2. In 2019, EVC launched JomCharge – the first OCPP compliant homegrown Charge Station Management System made in Malaysia 3. In 2022, together with Gentari, launched first charge hub at Xpark Sunway Serene, Petaling Jaya consisting of the fastest public charger in South East Asia - 350kW	SDG7 Affordable and clean energy
evenergy		Evenergy is in the business of improving the ROI of investing in Renewable Energy. This is done by providing a platform for sustainability conscious corporations and individuals to purchase Renewable Energy Certificates (RECs).	1. Product launched in September 2019.	SDG7 Affordable and clean energy
extractAI		Extract AI allows businesses to utilise Artificial Intelligence in accelerating their growth, via a one click web-based platform that requires zero prior knowledge in AI to operate.		
FACTOHUB		Factohub is a digital logistics platform that enables businesses to manage booking for air and sea freight from China to Malaysia and distribute commercial goods by land in a few simple steps.	1. Nominated as Top 12 Best Startup for 'Pitch for A' during Malaysia Tech Week 2019 (MDEC) 2. Top 8 Best Startup in ASEAN under JumpStarter 2019 3. Part of the Malaysia delegation to B.R.I.C.S Technology Transfer in Kunming	

Source: Based on survey feedback and public domain

Cohort 1.0

Startups	Country	About	Traction	SDG Goals Fulfilled
ledgerbrains		LedgerBrains (formerly GA Alliance) is an alliance of professional firms that believe in the use of latest finance and accounting technology to serve businesses in their quest for financial health, growth and sustainability.	1. Established in 5 countries 2. Worked with more than 170 companies	
alfred.		HeyAlfred is an artificial intelligence platform that automatically tracks assets and liabilities to better visualise, understand and manage personal finance.	1. Top 3 graduate from Alpha Startups MyFintech Week 2. Successfully integrated with institutional partners (Citibank, DBS, SingPass) through Open API in Singapore as of Sep 2019 3. Target product launch in Nov 2019 with seed funding of MYR $3M. Target 50,000 users by June 2020	
HitzeTek "We Mit gate Your ~ea:"		HitzeTek provides a complete solution to the energy industries. They specialise in industrial insulation products, particularly areogel insulation, which is used widely globally for various applications.	1. Completed 9 projects: chilled water line piping for PRSB, Steam Line piping at PETRONAS Utility Kerteh, chilled water line piping at Setia Haruman Putrajaya and GDC Putrajaya	SDG9 Industry, innovation and infrastructure
igl coatings		IGL Coatings are innovators in eco-friendly automotive and industrial coatings. Their cutting-edge solutions utilising nanotechnology and graphene delivers unmatched protection, performance, and sustainability.	1. Provided solutions to corporate clients including Favelle Favco, Disney, Amazon and several others 2. Recognised by Financial Times as the Fastest Growing Manufacturing Startup in Asia Pacific, 2 years in a row 3. Recognised by Star Outstanding Business Awards for Male Entrepreneur of the Year Award 2023	SDG9 Industry, innovation and infrastructure
inference		Inference Tech is a Malaysian AI solution provider specialising in enterprise-centric, hardware-agnostic AI-driven solutions.	1. Tasked to deploy our AI-driven solution to inspect the road infrastructure of the entire island of Singapore 2. Represented Malaysia at the Expo 2020 Dubai Malaysia Pavilion 3. Received MYR $2M funding from Cradle Fund through the CIP Accelerate Funding programme	SDG9 Industry, innovation and infrastructure
POMEN		POMEN is a B2B SaaS platform that streamlines maintenance and repair operations by connecting businesses with service providers, providing real-time insights and utilising AI for predictive maintenance.	1. Secured 3 years contracts with EON Berhad for multiple car brands including Proton, Mitsubishi, Volkswagen, Audi, Isuzu and smart EV 2. 3 years collaboration with PETRONAS Dagangan Berhad for PETRONAS fleet in KLIA and fuel terminal. (renewed on 1st April 2024) 3. PETRONAS NGV dismantling project for nationwide	SDG9 Industry, innovation and infrastructure
Qoala		Qoala provides technology solutions for insurers, insurance intermediaries, and potential insurance distribution channels.	1. Over 20 insurance partners have facilitated over 8M transactions 2. Secured Series B funding of USD $65M led by Eurazeo in May 2022 3. Completed a Series B+ round, raising USD $7.5M led by Responsibility in March 2023	
SOLS ENERGY		SOLS Energy is the leading player focused on residential and small scale solar with 9 years of experience in Malaysia and over 1,900 projects installed to-date worth 14+ MW. SOLS Energy is a PETRONAS investee company.	1. No. 1 home solar company with 1,900+ home solar installations 2. Brought energy access to over 1,500 B40 Orang Asli & Orang Asal homes 3. 600+ solar academy graduates from the B40 indigenous community	SDG7 Affordable and clean energy SDG8 Decent work and economic growth
virtual X		Virtual X creates ARVR tools that helps industrial front liners to work better. They use VR to provide simulation training, and AR for real-time work guidance and reporting.	1. 500% revenue growth from 2023 to 2024 2. 1st runner-up in Pos Aviation Hackathon 2019 3. Current partnership with TMOne and Asia Rail Academy 2019, past customers include Proton and Malaysia Airports Berhad	

Source: Based on survey feedback and public domain

PETRONAS FUTURETECH

Cohort 2.0

Startups	Country	About	Traction	SDG Goals Fulfilled
aerodyne		Aerodyne is a DT3 (drone technology, data technology, and digital transformation) enterprise solutions provider, leading the global tech curve in leveraging drone data and AI-powered analytics to solve complex industrial challenges. Aerodyne is a PETRONAS investee company.	1. Ranked No. 1 in Global Drone Service Provider Ranking by Drone Industry Insights, Germany for 3 consecutive years [2021-23] 2. Awarded by Malaysia Book of Record for receiving the 1st SUP Approval for Nested Drone Project [2023] 3. Winner of International Business Review Global Maritime and Aerospace Awards 2023	SDG9 Industry, innovation and infrastructure
AGRIDATA		AgriData is an agriculture tech startup that enables farmers to get market and financial accessibility data all in one seamless, effective and reliable platform.	1. Raised MYR $333K in funding 2. Top 15 finalists of the Khazanah Impact Innovation Challenge (KIIC 2023) grant organised by Khazanah Nasional Berhad 3. Onboarded 2,000 farmers	SDG9 Industry, innovation and infrastructure
Arus Oil		Arus Oil is an on-demand recycling platform for used cooking oil that enables household and businesses to conveniently recycle their used cooking oil.	1. Recycled 1,000 tonnes of used cooking oil 2. Achieved International Sustainability & Carbon Certification (ISCC) in January 2023 3. Acquired over 4,000 users	SDG12 Responsible consumption & production
EDAR™ formerly known as BeliGas		EDAR (formerly BeliGas) is a waste-to-wealth retail grocery chain across Kuala Lumpur, Selangor, Negeri Sembilan and Penang that allows payment by recycling household waste.	1. Won the Malaysia Book of Records in 2021 for being the first local company that allowed the recycling of used cooking oil as payment for LPG cooking gas delivery 2. Won the Most Innovative Growth Company category of Top In Tech Innovation Award 2021 for its consumer-driven innovations 3. Winner of Star Golden Hearts Award 2021	SDG12 Responsible consumption & production
BOOM GROW		BoomGrow pioneers vertical farming in South East Asia, addressing food security crises by promoting hyper-local, toxin-free produce and reducing greenhouse emissions.	1. Successfully expanded into the Philippines, establishing operations in Manila at Newport World Resorts 2. Strengthened foothold in Malaysia, with operations spanning from Penang Island in the north to Desaru Coast in Johor in the south 3. Represened Malaysia and presented at COP28 in Dubai	SDG 2 Zero hunger
BDM		Bumi Data Mining specialises in providing end-to-end technology solutions that help organisations harness data for digital transformation.	1. Awarded a 5-year contract for PETRONAS upstream assets in 2021 2. Collaborated with two companies in Indonesia in 2023 3. Currently operating on six PETRONAS assets, including PETRONAS Carigali Turkmenistan and Peninsula Malaysia assets	SDG9 Industry, innovation and infrastructure
e-Komoditi™	 	eKomoditi implements technology in remote agriculture and mining areas across Southeast Asia to improve efficiency and sustainability. Services include agronomy and mine restoration consulting.	1. Operations coverage over 300,000 hectares of palm oil, coconut, rubber, and sugar plantations 2. More than 50,000 agriculture worker activities tracked 3. Restoration efforts are being monitored at two depleted mining sites in Indonesia	SDG 12 Responsible consumption and production
garuda robotics		Garuda Robotics builds aerial robots integrated with AI-powered workflow software, enabling enterprises and governments to automate and digitalise critical operations.	1. G1. Received the Spirit of Enterprise (SOE) Award in 2022 2. Achieved ISO 27001:2013 certification in December 2022 3. Formed an exclusive partnership with OneSky to provide Unmanned Aircraft Traffic Management (UTM) services to aviation authorities, city governments, enterprises, and security agencies in Malaysia	SDG9 Industry, innovation and infrastructure SDG 11 Sustainable cities and communities
GRAFFIQUO		Graffiquo transforms industries with cutting-edge visual technology, enhancing operational efficiency, safety, and decision-making.	1. Completed 5 sites for Petronas GAS Facilities (onshore and offshore) within 12 months, culminating in contracts totaling MYR $1.3M in value 2. Received the OGSE Development Grant from Malaysia Petroleum Resources Corporation in December 2024 3. Featured as the cover story on the front page of Edge Digital Weekly News (11 March 2024)	SDG9 Industry, innovation and infrastructure
nanka Meat Substitute? Meet Jackfruit		Nanka (formerly Ira Noah) is a food technology company specialising in sustainable alternatives to food like meat, flour, milk and feed sourced from jackfruit.	1. Received investments from U.S. alternative protein investor LF Growth Fund in November 2022 2. Partnered with Kambria to join their Social Impact Innovation Alliance (SIIA) 3. Invested by Glocalink Singapore in 2020	SDG 2 Zero hunger
ITXOTIC		ITXOTIC is a technology company with a mission to drive change in Southeast Asia for businesses and smart manufacturing.	1. Recognised with Gold in Industry Excellence Award 2022 by The Institution of Engineering & Technology, a UK-based professional body 2. Partnered with Maxis to create and commercialise 5G use cases and IoT solutions across industries in Malaysia and Asia-Pacific 3. Showcased and pitch solutions to energy players at Oil and Gas Asia (OGA) 2022	SDG9 Industry, innovation and infrastructure

Source: Based on survey feedback and public domain

Cohort 2.0

Startups	Country	About	Traction	SDG Goals Fulfilled
KENANGA SURIA Your Sustainability Partner		Kenanga Suria is producer of proprietary technology EcoGuard, helping companies to meet with environmental regulations while unlocking financial returns, by transforming oil waste challenges into valuable carbon credits.	1. Secured exclusive partnership with state-owned GLC to provide solution for sustainable waste management in eliminating fats, oils, grease and hydrocarbon 2. Secured exclusive partnership for distribution in Saudi Arabia and approved for export under ISO9001 certification and SASO Certificate of Conformity COC 3. Provided petrochemical company with solution to overcome VOC pollution in operations, eliminating dangerous fumes and meet with environmental compliance requirement	SDG9 Industry, innovation and infrastructure
KRENOVATOR		Krenovator addresses the global tech talent shortages by providing a range of solutions, including skills development, community for tech professionals, tech talent as a service: remote/hybrid staffing and outsourcing, and more.	1. Received USD $12K funding from NEXEA 2. Grew tech community to more than 5000 talents across Malaysia, Indonesia and Thailand 3. Assisted more than 200 qualified talents to get tech jobs in Malaysia, Singapore, and the UK	SDG8 Decent work and economic growth
MOVERobotic® Autonomous Mobile Robot		Move Robotic specialises in advanced Autonomous Mobile Robots (AMR) tailored for the warehouse and factory automation industry, enhancing efficiency and safety through innovative, intelligent robotic solutions.	1. Awarded Teraju SUPERB Grant to develop Outdoor AMR and proprietary Warehouse Management System in 2021 2. Collaborated with MIAT, Subang to develop an Automated Storage & Retrieval System with Warehouse Management System for SMART MRO warehouse in 2022 3. Secured funding from Leave A Nest Capital and Japanese investors to expand the company and target local production by 2025	SDG9 Industry, innovation and infrastructure
OIL & BRICK SDN BHD		Oil & Brick is redefining the pipeline industry through intelligent systems & autonomous robots.	1. Ongoing fundraising to raise USD $15M seed round - yet to be finalised	SDG9 Industry, innovation and infrastructure
POSEIDON SOLUTIONS		POSEIDON is a digital solution that automates the health checks of ageing infrastructure.	1. Partnered with PETRONAS to develop a state-of-the-art tailor-made solution for their Carigali's asset in Sarawak waters 2. Engagement with Maxis, delving into the vast potentials of autonomous monitoring for telecommunication towers	SDG9 Industry, innovation and infrastructure
Sophic Digital Solutions		Sophic is an industrial IoT service provider to create smart factory by connecting & digitising the machines & workforce.	1. Partnered with Sensata Technologies Group to provide automated and IR4.0 integrated machine worth MYR $300K for Sensata Malaysia and MYR $1.4M for Sensata Mexico respectively 2. Partnered Tyson Foods (Macfood) to provide AI computer vision solution to inspect goods worth MYR $600K 3. Develop Sophic CMMS system with machine learning to utilise workers resources base on availability and skills	SDG9 Industry, innovation and infrastructure
STAFY		STAFY is the 1-stop centre providing digital and competitive financial services for the underserved in Southeast Asia.		
VIUCOM		Viucom (formerly Superheat Energy) aids businesses in achieving sustainability by digitising off-grid assets with satellite IoT solutions, ensuring efficient operations and effective resource management.	1. Secured contract for satellite-IoT connected tsunami early warning and monitoring project from Philippines 2. Secured contract for Satellite-IoT connected decentralised solar-powered water treatment from SIRIM 3. Signed collaboration agreement with Azakti Energy to expand Viucom GTEX and Viucom EXO satellite IoT solutions into the oil and gas market in Malaysia	SDG9 Industry, innovation and infrastructure
Xcess pressure		Xcess Pressure has developed Super Butterfly (SB), an innovative pipeline hydropower system. Revolutionising local energy, SB harnesses pipeline water flow for renewable energy.	1. Successful completion of inaugural pilot project with deployment of a pilot prototype located near Taman Putra Perdana, Puchong, conducted in partnership with Air Selangor, Malaysia's leading water operator 2. Granted research funding under the Technology Development Fund 2 scheme by MOSTI 3. Engaged in ongoing discussions with PAAB, a wholly-owned company of the Minister of Finance Inc., regarding the potential implementation of SB system across Malaysia	SDG9 Industry, innovation and infrastructure

Source: Based on survey feedback and public domain

Cohort 3.0

Startups	Country	About	Traction	SDG Goals Fulfilled
A2 TECH		A2Tech delivers advanced robotic systems, primarily for 3D inspections in challenging environments. They prioritise robotics, AI, and IoT to innovate continually, meeting evolving client needs for safer, efficient solutions.	1. INSPECTo product has been certified by SIRIM 2. Conducted POC of INSPECTo to new customers and stakeholders 3. Engaged with 3 new projects on agriculture automation, robotics surveillance and robotics inspection	SDG9 Industry, innovation and infrastructure
Augmentus robotics		Augmentus is a leader in robot vision and motion planning systems for welding and surface finishing.	1. Achieved SGD $1M in revenue 2. Raised SGD $8M in Series A fundraising 3. Secured over 30 customer contracts in Asia and North America	SDG9 Industry, innovation and infrastructure
beep		Beep aims to make charging easy for everyone through their eMobility platform, Voltality, working with industry players to build an integrated ecosystem of charging stations, payment services and mobility providers.	1. Processed nearly 1GWh of energy through their platform in 2023 2. Partnered with Charge Point Operators across Singapore, Malaysia and Thailand with more than 3800 charge points installed in their networks 3. Launched largest eRoaming network in region in 2023 with 11 operators in Singapore	SDG7 Affordable and clean energy
BOTSYNC		Botsync is a robotics startup that builds heavy duty autonomous mobile robots to help companies transit from manual operations to automation in less than a week.	1. Operating in 3 countries 2. 140X YoY usage growth (2021 to 2023) 3. 5X Revenue growth (2021 to 2023)	SDG9 Industry, innovation and infrastructure
DIVI GAS		DiviGas has developed a next-generation hydrogen separation membrane for industrial gas purification.	1. Shipped and installed product with 3 pilot partners 2. Received first revenue 3. Manufacturing plant is now operational	SDG 7 Affordable and clean energy SDG 9 Industry, innovation and infrastructure
ENOKU People Worth Discovering		ENOKU is on a mission to bridge the employment gap for persons with disabilities through its end-to-end solutions that ensure sustainable employment and inclusive working environment. ENOKU is part of SEEd.Lab.	1. Won USD $20K in grant through Women in Entrepreneurship programme by Biji-Biji Initiative 2. Secured contract with an oil and gas company worth MYR $300K 3. Secured a 3 year contract with an oil and gas company	SDG8 Decent work and economic growth SDG10 Reduced inequalities
ENTOMAL		Entomal Biotech pioneers scalable solutions using black soldier fly bioconversion to transform food waste into valuable resources, addressing global issues of waste, emissions, and food security sustainably.	1. Achieved MYR $2.4M revenue last fiscal year 2. Formed strategic partnership with Malaysian state government agency to convert agricultural waste to insect-derived animal feed 3. Launching 4 new units of mobile food waste solution, the Entomal Mobile BioConversion System in 2 months, with 8 more in the pipeline	SDG12 Responsible consumption and production
EVFY Driving Sustainable Urban Logistics		Evfy provides a 100% electric van fleet, warehouse and proprietary logtech with a zero carbon emissions aim for last mile logistics.	1. USD $1.5M total revenue to date 2. USD $200K total burn to date 3. 30 enterprise clients to date	SDG7 Affordable and clean energy
HYDREXIA		Hydrexia is an integrated hydrogen technology that specialises in providing technical solutions for hydrogen production, storage, distribution and end-use applications.	1. Started first commercial testbed for magnesium hydride system in Shanghai 2. Collaborated with UMW Toyota to supply mobile hydrogen refuelling system for Toyota Roadshow and event at MOSTI 3. Obtained contract to supply 50 metal-hydride hydrogen storage containers	SDG7 Affordable and clean energy
ION MOBILITY		ION Mobility is a tech and automotive lifestyle brand with a 120-strong 11-nationality team across 4 countries. Their first product, the ION M1-S, combines advanced hardware and software technology with human-centred design.	1. Built tech, product and teams across Singapore, Indonesia and China 2. Raised USD $25.5M for hardware-first, software-later business, with Series A led by TVS Motor 3. Secured preorders while launching flagship experience centre in Jakarta and battery pack and motorbike factory in Karawang	SDG7 Affordable and clean energy
kazam		Kazam digitises the EV and its fuelling hardware into a cloud to allow payments, authentication, analytics and vehicle telematics. It's emobility platform empowers the EV ecosystem with charging, swapping, grid optimisation, and fleet management solutions.	1. Crossed USD $2.4M ARR 2. Total usage has crossed 1000 MWh per month 3. Network of 13000+ total charge points	SDG7 Affordable and clean energy
Magorium		Magorium's technology converts contaminated and unsorted plastic into a new road construction material to pave greener roads. This aims to solve the plastic waste crisis and create a more sustainable construction sector using waste-derived materials.	1. Paved 6 plastic waste roads 2. Secured 1-2 tonnes plastic waste feedstock per month 3. Over USD $900K total revenue to date	SDG12 Responsible consumption and production
MIDWEST COMPOSITES YOUR ENGINEERED COMPOSITES PARTNER		Midwest Composites specialises in providing solutions to companies that are interested in utilising advanced composites & biocomposites in their business to help them realise their full potential.	1. Building shopping carts for Retailetics 2. Building drone components for Arina Kambyan 3. Building bus parts for SKSBUS	SDG 9 Industry, innovation and infrastructure

Source: Based on survey feedback and public domain

PETRONAS FUTURETECH

Cohort 3.0

Startups	Country	About	Traction	SDG Goals Fulfilled
MYCL		MYCL develops high-performance and sustainable bio material for fashion, building and automotive applications.	1. 3 years participation in Paris Fashion Week with LVMH prize winning designer 2. Established MYCL Japan, JV to manufacture and tap local market of MYCL mycelium leather in Japan 3. Received Good Design Award for Mylea™ and MYCL Composite	SDG12 Responsible consumption and production
semart.		Semart empowers micro-SMEs with financial literacy and inclusive business solutions, fostering economic growth and sustainability in Malaysia and beyond. Semart is part of SEEd.Lab.	1. Enrollment into cohort II into the BeSemart Programme in Kedah 2. Launch of the Semart POS App version 1 and integration with SoftPOS 3. Completion of YHSE with Yayasan Hasanah	SDG 8 Decent work and economic growth
OPEN ENERGY		Open Energy is revolutionising B2B fleet operations with HyperSwap, the most affordable and advanced EV battery swap and energy storage solution for seamless, cost-effective, and sustainable mobility.	1. USD $250M combined deal prize-winning from MOUs/LOIs 2. Signed 3 MOUs/LOIs 3. Total of 45K EVs in partner fleet size in MOUs/LOIs	SDG7 Affordable and clean energy
accacia		Accacia by Process Botics is an AI-enabled platform to help real estate and infrastructure companies (developers, asset managers, financial institutions, operators, and governments) meet their net-zero goals.	1. 60M+ sqft platform deployed globally to measure & reduce emissions 2. Present in 4 countries 3. USD $2.5M seed round led by Accel and B Capital	SDG 9 Industry, innovation and infrastru
QARBOTECH		Qarbotech is a leading sustainability and green tech company that is committed to using technology to make a positive impact on the world. Their flagship product, QarboGrow, is a revolutionary photosynthesis enhancement technology that helps farmers increase crop yields while reducing their environmental impact.	1. Reached 350 smallholder farmers in Malaysia and Indonesia 2. Tested and validated on more than 10 types of crops 3. Secured 5 partners/collaborators in Malaysia and in Indonesia	SDG 2 Zero hunger
SAPOT		SAPOT trains recovered mental health survivors to become Malaysia's pioneer accredited peer supporters (i.e. SAPOT Warriors). They provide mental health support through 1-1 peer support sessions, talks, workshops, and events. SAPOT is part of SEEd.Lab.	1. Secured 5 one-off B2B clients and 1 long-term B2B client 2. Secured in-kind mobile app and platform development by Petronas Group Digital 3. Awarded top 5 most impactful initiative by Women in Tech APAC	SDG 3 Good health and well-being
sungreen H2		SunGreenH2 is an award-winning startup transforming green hydrogen production from electrolysis with proprietary technology to manufacture high performance, low-cost electrolyser components using advanced nanostructured materials.	1. Raised USD $3.5M funding 2. Reached USD $0.25M in revenue to date 3. Onboared 5 customers	SDG7 Affordable and clean energy
TIGASFERA		Tigasfera transforms your waste into electricity and carbon by-products via its on-site containerised solution, simultaneously addressing waste disposal, renewable energy and decarbonisation challenges. Tigasfera is incubated under PETRONAS Innovation Garage.	1. Signed Letter of Intent to supply up to 100 tonnes of biochar-enhanced fertiliser a month with a local durian plantation group, valued at MYR $300K/month 2. Signed manufacturing agreement with a Chinese partner to manufacture first Ecosfera container 3. Signed new collaboration NDAs with partners in Sarawak, Indonesia and Japan	SDG 7 Affordable and clean energy SDG 12 Responsible consumption and production
TraceX TECHNOLOGIES		TraceX is a next-generation digital agriculture platform that leverages blockchain to connect multiple participants across the food and agri supply chain and help them securely exchange verifiable and auditable data leading to mutual trust, accountability, traceability and transparency amongst the participating actors.	1. Total USD $450K revenue to date 2. Total 35 customers to date 3. Present in 5 countries - India, France, Liechtenstein, Turkey & Nigeria	SDG 12 Responsible consumption and production
V-Cred		V-Cred is an AI software company building a subject matter expert AI. They help analysts speed up their work involving information retrieval, analysis and reasoning for specific technical domains. V-Cred is incubated under PETRONAS Innovation Garage.	1. 3 pilot tests projects 2. 4 ongoing proof-of-concepts 3. 2 corporate partnership interest	
WILDFIRE ENERGY		Wildfire Energy has invented world-leading technology that produces cost-effective renewable energy, hydrogen, methanol and sustainable aviation fuel from waste destined for landfill, eliminating greenhouse gas emissions and assisting transition to net zero.	1. Raised over USD $5M 2. Demonstrated conversion of municipal solid waste and other feedstocks into hydrogen and electricity in pilot plant in Brisbane 3. Finalising construction details of first full-scale project in Brisbane, signed agreements to progress projects in the Pacific, Queensland and Spain	SDG 7 Affordable and clean energy SDG 12 Responsible consumption and production
Zapp World DECENTRALISED DECARBONISATION		Zapp World is a mission-driven full-stack technology company that takes the solution to the problem, treats pollutants at source, completing the circular economy.	1. Hit MYR $500M market value based on TAM 2. Exploring 5 iternational markets 3. Exploring 3 oil and gas companies in Malaysia	SDG12 Responsible consumption and production

Source: Based on survey feedback and public domain

PETRONAS FUTURETECH

Special Thanks

The success of FutureTech is built upon the unwavering support and invaluable contributions of our mentors. Their dedication, expertise, and guidance have played a pivotal role in shaping the journeys of our participating startups, among others, helping them connect with the Business Units for potential business match, sharing of business insights and refine their strategies. We extend our heartfelt gratitude to each of our mentors, for their dedication, expertise, guidance and commitment.

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Dr. David Ross Appleton
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Mohd Izzuddin Mohd Noor
Nor Arizal Abdul Azmi
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Marzlyqa Razali

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Joel Chung
Mark Chung

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Mohammed Yussof
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