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OUTBOUND

Pacton takes its aquaculture AI ambitions across SE Asia

By Danial Dzulkifly

Pacton Technologies Sdn Bhd is taking its artificial intelligence (AI)-powered aquaculture platform, FishSpeak, into Indonesia and other Southeast Asian markets, betting that technology developed on Malaysian fish and shrimp farms can be adapted across the region.

The firm's ambition goes beyond selling farm-management software for water quality monitoring and record keeping. It wants to become the data and intelligence layer connecting farmers, government agencies, financial institutions and insurers in an industry where information remains fragmented and often outdated.

Today, its technology has been deployed through an agriculture tech (agritech) programme under the Malaysia Digital Economy Corporation (MDEC) and tested by a shrimp-farming company owned by Khazanah Nasional Bhd.

Faisal Shahdil Arshad, its founder and managing director, says many farms still lack basic digital record-keeping systems, leaving governments without timely production data and farmers without the records needed to demonstrate their financial viability.

"We intend to build the brain of the aquaculture industry because nobody is really playing in this space; it is still an untapped market," he tells *Asean*.

Pacton is targeting Indonesia, Vietnam, Brunei and the Philippines, with Indonesia being its immediate priority. Rather than building a different platform for each market, it plans to retain ownership of the core intellectual property and adapt FishSpeak to local species, farming practices and water conditions.

"This intelligence can be replicated in any other geography. We may need to adapt it to local conditions, but we would not have to rebuild the entire system," Faisal says.

Pacton's move into aquaculture began with a problem at Faisal's own seven-acre tilapia farm in Slim River, Perak.

When the company was incorporated in 2018, it initially designed printed circuit boards for internet routers. As the business evolved, Faisal began exploring how its engineering capabilities could be applied to other industries, eventually turning his attention to challenges at his own fish farm.

The farm posed several challenges: feed-related expenses accounted for about 70% of its operating costs, while poor internet connectivity made it difficult to introduce digital monitoring and automation.

Pacton initially focused on improving connectivity and automating parts of the farm. But then came the realisation that automation alone could not tell farmers when to feed their fish, why conditions were deteriorating or whether disease was likely to emerge.

"The opportunity was to add intelligence, not just automation. We want to give farmers a personalised second brain for their specific farm activities," he says.

The company pivoted towards aquaculture in 2022, spent about a year on research and development, and began deploying FishSpeak through MDEC's AgTech Programme in 2023.

Under the programme, the government



SHAHIRIN YAHYA/THE EDGE

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subsidised the system’s deployment at more than 50 aqua-culture sites. Those early installations gave Pacton access to different farms, species and water sources, allowing it to collect data and learn where its original approach fell short.

However, a problem that plagued FishSpeak during its early days was its reliance on sensors submerged in ponds to monitor water quality.

Faisal says the sensors had to remain in the water around the clock and required regular cleaning, calibration and maintenance. When they were not properly maintained, their readings became less reliable.

“We suddenly found ourselves becoming a maintenance company,” he says.

The firm subsequently replaced much of the sensor-based system with cameras and computer vision. Cameras capture images of the water, fish and shrimp, which the company then analyses using its proprietary AI models.

Faisal says the switch has lowered monitoring costs by about 75%, while reducing the calibration and maintenance needed for submerged sensors.

AN AI PLATFORM SUPPORTED BY WHATSAPP AND AN LLM FOR USER COMMUNICATION

Today, the models have been trained over three years on more than 21,000 data points drawn from different species, farm environments and water sources. Pacton holds three patents relating to its technology.

At fish and shrimp farms, the cameras capture images and video that are used to assess conditions in individual ponds. Faisal says FishSpeak can identify signs of stress and warn farmers of a potential disease outbreak as early as seven days before it occurs.

The cost of missing those signs can be substantial. According to Faisal, the loss of a harvest from a 0.8ha shrimp pond could cost a farmer about RM100,000.

“The farmer may look at the water and the shrimp and realise there is a disease, but by then it has already happened. What we are trying to provide is a preventive mechanism. If farmers receive an early warning seven days beforehand, they have time to act because they have data to work with.”

Faisal says the technology has been tested over five production cycles at Blue Archipelago Bhd, the shrimp-farming company owned by Khazanah Nasional.

FishSpeak also acts as a farm-management and record-keeping system. Farmers can record feed use, inventory, stocking dates, fish varieties and expected harvesting schedules through WhatsApp and a large language model (LLM).

Pacton deliberately chose WhatsApp because many small-scale farmers are unfamiliar with conventional enterprise software and may stop using a platform after something as simple as forgetting their password.

“It does not matter how good your platform is if the

“If we do not have data, we cannot make better decisions, and that data needs to be available in real time. This concerns food security. Every farm, big or small, needs some form of record-keeping system.”

Faisal

farmer cannot use it. WhatsApp is familiar. Everyone already uses it, so that makes onboarding much easier.”

The LLM serves as the communication layer, allowing farmers to ask FishSpeak questions through the messaging application. Faisal says its answers are drawn from Pacton’s own database and tailored to the profile of the individual farm.

When a farm joins the platform, Pacton records information including pond sizes, the species being raised, stocking dates, local weather conditions and the farm’s operating procedures. New information from the farm is then added to a separate layer of its AI system.

“Two farmers will not necessarily receive the same answer because their farms are different. The intelligence is personalised to the conditions at each farm,” he says.

This data could eventually support services beyond farm management. With farmers’ consent, Faisal says Pacton could provide verified information to banks and insurers, helping them assess production and repayment risks.

Aquaculture farmers frequently struggle to obtain financing because they lack audited operating accounts or a three-year track record of profitability. FishSpeak, he says, could show how much stock a farm has, when it is expected to be harvested and whether production conditions are being managed properly.

“If we have the farmers’ consent, we can use verified data to help financial institutions assess their risks. Fish-Speak could project how much fish a farm is likely to harvest in three months, the expected size and whether the quality has been properly managed,” he says.

Faisal’s ambition to support farm financing places data at the centre of Pacton’s regional strategy. He says aquaculture data in Malaysia remains fragmented, while some figures available to policymakers can be two years out of date.

Malaysia has about 21,000 aquaculture farms, according to Faisal, but many operate without connected farm-management or inventory systems.

“If we do not have data, we cannot make better decisions, and that data needs to be available in real time,” he

says. “This concerns food security. Every farm, big or small, needs some form of record-keeping system.”

EXPANDING INTO INDONESIA

In Indonesia, Pacton is pursuing private projects as well as larger government-backed programmes.

Faisal says the company has secured a RM10 million technology project for a privately owned shrimp farm in Aceh. FishSpeak is currently serving 475 ponds in Aceh, he says.

Pacton is also seeking work on an integrated shrimp-farming development in Waingapu, East Nusa Tenggara. Faisal puts the project’s total infrastructure value at about US\$450 million (RM1.84 billion), with Pacton’s potential contribution, covering farm automation and a digital twin, equivalent to roughly 0.2% of that amount.

The Waingapu development comprises 1,365 ponds at a single operation. Pacton is separately pursuing opportunities under an Indonesian programme to revitalise aquaculture land across four locations.

The company is also in discussions with Malaysia’s Department of Fisheries about using FishSpeak as the central system for a proposed programme involving about 1,000 farms. Pacton is targeting 3,000 deployments between 2027 and 2029.

Instead of entering each country alone, Pacton intends to expand through established farmers, research bodies and other local partners.

In Indonesia, Faisal says its private-sector client could also become an advocate for FishSpeak among other farmers. Aquaculture communities can be cautious about new technology, but the adoption of a system by one influential farmer may encourage others to try it.

“If we can convince a respected person within the farming community and the technology works for that person, adoption can spread naturally,” he says.

Pacton has also partnered with WorldFish, the Penang-based international research organisation known for developing improved tilapia strains. WorldFish works on aquaculture and food-security programmes in markets including Timor-Leste, Bangladesh, Pakistan and Kenya.

Faisal says WorldFish’s interest in FishSpeak centres on its computer-vision capabilities and the simplicity of its WhatsApp interface, particularly when working with small-scale farmers.

Pacton’s decision to focus on software is also intended to make its regional expansion less capital-intensive. Rather than requiring farmers to replace their existing feeders and equipment, FishSpeak is designed as a modular system that can be connected to hardware already in use.

“We can provide the hardware if a farm needs it, but if the farmer already has equipment, we can integrate with that,” Faisal says. “What we want to retain is the control system, the software and the core intellectual property.” ■

VALUATOR

Company(Brand)	Mention	Tone	ROI
[Economy] Exclusion Brand - BNM ([Economy] Exclusion Brand -	2	0	RM 0
AEON Credit - Industry News (AEON Credit - Industry News)	2	0	RM 0
Agencies - DOF - Enzee (Agencies - DOF - Enzee)	9	0	RM 0
Bahagian Industri Asas Tani - Lembaga Kemajuan Ikan Malaysia	12	0	RM 0
Bayer Animal Health (Bayer Animal Health)	12	0	RM 0
Boehringer Ingelheim Animal Health (Boehringer Ingelheim -	1	0	RM 0
Construction News (IJM) (Construction News (IJM) 28)	20	0	RM 0
CPA - Technology (CPA - Technology)	6	0	RM 0
Digital Economy (Digital Economy)	5	0	RM 0
DIGITAL PERAK CORPORATION HOLDINGS	1	0	RM 0
Economy & Financial Stability-BNM (Economy & Financial Stability-	1	0	RM 0
Economy News (Economy News)	1	0	RM 0
Financial Education Business - AKPK (Financial Education Business -	1	0	RM 0
Global Switch - Adjacent/Contextual (Global Switch -	1	0	RM 0
Governing News - Governing News - Ministries and Government	2	0	RM 0
Industry - UDA Holdings (Industry - UDA Holdings)	4	0	RM 0
Industry News - Boost (Industry News - Boost)	1	0	RM 0
Industry News - Government-linked Investment Companies (GLICs)	1	0	RM 0
Industry News - Perbadanan PR1MA Malaysia (Industry News -	4	0	RM 0
Industry News - PKNP (Industry News - PKNP)	1	0	RM 0
J-KOM - Lain-Lain (J-KOM - Lain-Lain 1)	3	0	RM 0
Khazanah Nasional (Khazanah Nasional)	1	0	RM 0
Khazanah Nasional Berhad (Khazanah Nasional Berhad)	1	0	RM 0
KPKM (issues) - Enzee (KPKM (issues) - Enzee 1)	17	0	RM 0
KPKM (issues) - Enzee (KPKM (issues) - Enzee)	2	0	RM 0
Mah Sing Group Berhad (Industry News) (Mah Sing Group Berhad	11	0	RM 0
Malaysia Digital Economy Corporation (Digital Economy)	2	0	RM 0
Malaysia Digital Economy Corporation (Malaysia Digital Economy	3	0	RM 0
Malaysia Digital Economy Corporation (MDEC Programmes)	9	0	RM 0
Malaysian Intellectual Property Corporation (MyIPO) (Patent 1)	4	0	RM 0
MIMOS Industry News (MIMOS Industry News)	1	0	RM 0
Non Government- Malaysia (Non Government- Malaysia)	4	0	RM 0
Payments Network Malaysia Sdn Bhd (Payments Network Malaysia	6	0	RM 0
Property Development News (IJM) (Property Development News	3	0	RM 0
Randstad - Banking & Financial Services (Banking & Financial	5	0	RM 0
Randstad (Human resources 2)	16	0	RM 0
Robert Bosch (Bosch - Industry)	1	0	RM 0
Sime Darby Property - Industry News (Sime Darby Property -	11	0	RM 0
The Centre (The Centre)	4	0	RM 0

GIST(ENGLISH)

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