

BRIDGING THE 'GAP' – FUNDING SOLUTIONS FOR THE FUTURE

A MALAYSIA PERSPECTIVE

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Abstract

Financial support and market access are vital components of a nurturing innovation ecosystem. In Malaysia, local universities and research institutes are the champions of innovative ideas but their commercialization efforts are often hampered by both financial constraints for developing technology readiness and confined market access. This article reviews some of the efforts targeting pre-seed and seed funding, the majority of which are deployed by government venture agencies and ministries, and further describes existing programs offered to startups to connect these nascent ventures with strategic business partners. We also discuss the importance of the “incubator” model to shield these vulnerable ventures from market forces and present the emerging “accelerator” model that focuses on platforms for high potential technology entrepreneurs to develop their research into market-ready products.

Introduction

Small and medium enterprises (SMEs) have been globally acknowledged as the catalyst for economic growth and for providing much needed dynamic job creation. SMEs also play a significant role in shaping the trajectory of future technologies and the emergence of new industries. These SMEs, in particular the new technology-based firms and niche-strategy firms need technological innovations to stay competitive in their target markets. In Malaysia a recent report on the State of Household 2018 (Khazanah Research Institute, 2018) laments the lack of innovativeness of many new businesses, lagging behind similar entities in more developed economies with the survey revealing that from 2011 to 2017, only 16% of new businesses introduce new products amounting roughly half of those reported for

advanced countries such as the United States and the United Kingdom. At the startup phase in particular, SMEs have to overcome several challenges particularly if it does not have the necessary resources and expertise to develop, adopt or even adapt technological innovations. Hence, they have to build their technological competencies either through internal capabilities or by working with R&D partners such as universities or research institutes. For the latter new innovations are more often than not held up not by their lack of novelty but more on their technology state of commercial readiness. In general large-sized enterprises usually have a wider access to a range of financing options to finance their technological development. However, this is not always the case for small firms that typically have a more limited range of funding. The perennial problem for these new ventures is finding

investors who are risk-takers and willing to put their bets on nascent innovations that the expected return derived from an innovation is uncertain. On the other end of the spectrum universities and research institutes are often frustrated by their inability to move their technologies and innovations on to such firms as more often than not they still require funding to develop the technological readiness. Unfortunately the majority of professional investors seek to invest in a proven business model, or in ready to scale products, and this group of people often find new ventures commercially unattractive as deal flows hence the proverbial “gap”. The challenge in raising sufficient funds to develop new products or services led to the genesis of the dreaded sounding “Valley of Death”, a long standing almost clichéd metaphor that describes the divide between early stage R&D and market entry. The chasm exists due to insufficient funds being raised to bring a working prototype for a product or service to subsequent stages along the commercialization pipeline. Therefore a technology able to get through the chasm, would provide elements necessary to help small firms reduce the impact of the ‘valley of death’ and accelerate product development.

Bridging the gap: Malaysia's innovation ecosystem

Given the importance to lift the hurdles to overcome the gap, there is an urgent need to deploy different mechanisms targeting the very volatile pre-commercialization stage. The key elements in nurturing active innovation and entrepreneurship ecosystem in Malaysia have included the availability of pre-seed and seed funding, corporate and private sector involvement in the startup community, and facilitative programs, for example incubators and more recently accelerator programmes. These initiatives have enabled some technology transfer from universities and research institutions effectively moving their technologies up the value chain. And at the same time

complement internal innovations and scientific discoveries by early-stage ventures, thus helping the firms to grow and become more competitive in the market.

Pre-seed and seed funding

To establish the foundation of pre-seed and seed capital, nascent ventures typically secure funding support from various sources, such as donations, and personal loans from family, friends and banks. In addition, these firms also seek financial assistance from private and government supported venture capital firms, business angels as well as publicly funded research and commercialization grants. In Malaysia the majority of these grants have been provided to firms allied to universities and public research institutes, through mainly government backed funding, from institutions such as the Ministry of Finance, the Ministry of Education and the Ministry of Energy, Science, Technology, Environment and Climate Change (formerly known as the Ministry of Science, Technology and Innovation). One success story is the government venture agency Cradle Fund Sdn. Bhd. with a strong portfolio in Malaysia's entrepreneurial and commercialization ecosystem. It has helped fund more than 700 Malaysian high-tech start-ups, and recorded the highest commercialization rate amongst government grants. The agency currently offers Cradle Investment Programme (CIP) to assist seed stage entrepreneurs developing and commercializing their products (Cradle, 2018). Benefits of the grant goes beyond the financial support to include coaching and mentoring program, match making with potential investors and Cradle partners, and networking support. The program is specifically designed for ventures developing new technology-based products at the pre-seed stage with a conditional grant and value added assistance. The Malaysian Technology Development Corporation (MTDC) a government venture fund which last year celebrated its 25th year has also been active in technology ventures particularly since 2014, when it started focusing on investing in areas such as computing, robotics and automation. MTDC offers a full suite of facilitation services including seed stage funding through two matching grant

schemes namely its Commercialisation of Research & Development Fund (CRDF) and Technology Acquisition Fund (TAF) (MTDC, 2018). Another more recent player, Platcom Ventures manages an SME targeted fund, the high impact programme 2 (HIP2) specifically focusing on intergration and collaboration with Universities. In addition, the Ministry of Education, through its Department of Higher Education provides some early stage funding such as the MyLAB grant (MASTIC, 2017). The grant is open to scientists working in the public/private universities and research institutes, and who have successfully completed highly promising research findings or solutions in niche areas. The ultimate objective of the grant is to produce a completed and industry attractive product ready for commercialisation. An innovative programme known as the 'Demand-driven innovation project' by the Public Private Research Network or PPRN was also introduced by the Ministry in 2015 to facilitate and fund technology solutions by universities to small industry (PPRN, 2016). SMEs would pose their problem statements while universities would bid to solve them. The funds although restricted to small-scale funding for simple technological solutions, succeeded in creating the much needed bridge between the two, opening up new conversations for industry academia cooperation and closing some of the technology gaps between institutions of higher learning and small industry. Another ministry that has provided grants for commercialization of new products/technologies is the Ministry of Energy, Science, Technology, Environment and Climate Change with several grants offered such as the SMART Fund, Facilitation Fund and Inno Fund (MESTECC, 2018). The SMART fund, also known as SMART Challenge Fund, was offered to eligible SMEs and government organizations with a maximum amount of funding capped to RM 3 million for a duration of 24 months. In addition, SMEs may also apply for Facilitation Fund. The Fund aims at assisting SMEs to improve its product readiness, thus increasing the probability of surviving the Valley of Death. The quantum and duration of funding for Facilitation Fund was for RM500,000 and for 18 months.

While these examples are not exhaustive of the funding landscape in Malaysia, it gives an idea of the ecosystem that has been building up in the country. Nonetheless the amount of funding available still falls short of the ideal. R&D spend in Malaysia stands at only around 1.1% of GDP in 2015 (Khazanah Research Institute, 2018) with much of research spending by businesses carried out by bigger firms.

Connecting startups with the business world

Financial assistance aside, another crucial factor to help new ventures cross the gap is the need to boost their market presence and connect them with strategic business partners often a critical constraint for new startups with no track record. One initiative to address the need was an open innovation challenge platform, hosted by the Malaysian Global Innovation & Creativity Centre known as the Magic Activate Program (MaGIC ACTIVATE, 2017). This initiative provided support for startups/entrepreneurs to build their network, and further, to help firms refine their innovative product or solution by soliciting feedback from corporate innovators. The winners of this innovation challenge would receive the privilege to gain market access through the corporate sponsors and to increase their brand presence via media promotions. More such programmes offering proof of concept contracts would be a welcome form of facilitation for early stage companies needing to build their profiles. Another model for partnerships has been created through an initiative by the Collaborative Research in Engineering, Science & Technology or commonly known as CREST, a non-for-profit government-linked company focusing specifically on driving the growth of Malaysia's E&E industry (CREST, 2018). Besides facilitating collaborative market-driven research between industry and academia, CREST also nurtures future talents that are industry-ready, and initiates efforts that support commercialization of research outputs.

Shielding nascent ventures from market forces

Incubator programs are set up to shelter vulnerable nascent ventures from market

forces, and to nurture young businesses to grow stronger and become independent. Startup incubators provide necessary resources, such as physical spaces available on flexible terms and durations, advisory services and access to network. The business model adopted for incubators is typically by charging rental or membership fees to startup residents. This business model is perfectly suited for businesses that are not expected to scale rapidly. Additionally, the firms are entitled to receive financial support through various sources, either from government budget, or from venture capitals or angels. In some cases, the firms can use facilities in technology labs, which were set up to assist in undertaking further work relating to the early-stage prototype development.

In Malaysia, the government has largely championed the establishment of seed-stage technology incubators. The 'first' generation of startups in Malaysia were mainly involved in the ICT industry and these firms enjoyed great benefits in terms of basic facilities and business support. In later years, the incubator model was expanded from an earlier emphasis on supporting ICT firms to technology and non-technology ventures, operating in various sectors including advanced engineering and biotechnology. Several technology incubator programs have been established, in collaboration between government agencies and public universities, or by the universities themselves (Table 1).

Accelerating technology development

Accelerator programmes are dedicated to bridge the gap that leads to innovative ideas being stuck in the early stage of commercialization pipeline. Historically, accelerator programs were funded primarily by venture capitalists but the landscape has now changed with more large corporates and the public sector involved in supporting this type of program. Accelerators are seen as an ideal model to accelerate technological commercialization for research institutions and universities. These entities produce a growing number of commercially attractive research discoveries, but they

Table 1: *University-linked technology incubators in Malaysia

Technology incubators	Year set up	Number of firms	Technology focus
UPM-MTDC Technology Centre	1996	46	IT, multimedia
UKM-MTDC Smart Technology Centre	1999	17	Biotechnology, pharmaceuticals
UTM-MTDC Technology Innovation Centre One	2001	15	Advanced engineering, life sciences
UTM Technovation Park Incubator	2012	18	ICT, Oil & Gas, Engineering, Architecture
UMXcellerate/UM Innovation Incubator	2016	40	Nanotech, Oil & Gas, Physical Engineering, Life Science, ICT, IoT
UPM-Innohub	2013	36	Agriculture, Biotech, Foodtech, ICT, Engineering

*The list includes public universities only

Table 2: Similarities and differences between incubators and accelerators

Programs	Incubators	Accelerators
<i>Similarities</i>		
Mentoring, Business support.		
<i>Differences</i>		
Duration of program	Continuous, lack of fixed terms	Fixed, short-terms normally 3 months
Cohorts	No	Yes
Business model	Rental / fee-based	Equity investment, seed funding
Venture stage	Early	Early, or late
Support system	Human resource, legal support, technical facilities, physical space	Seminars, technical facilities

face difficulties to bring the technology forward. This is partly because of the lack of necessary skills, experiences and resources among academics and researchers. Other contributing factors include the absence of interest expressed by potential investors as well as the inadequate funding dedicated to fund the validation work.

Accelerator program works by cohorts of nascent entrepreneurs. In the beginning of every cycle, the program will sort

and select highly promising applications. The program will provide services to selected nascent entrepreneurs, helping them to define and build their products or services, identifying promising target markets, speeding up market interactions, and securing necessary capital and human resources. In particular, services often include prototype development, initial market testing, the business plan development, and investor pitch deck. In contrast with incubators, seed ac-

celerators more often adopt business model based on equity investments in startups. This approach means that, the primary focus of accelerators is businesses that will scale rapidly or fail quickly, thus maximizing resource efficiency. The output of accelerators is projected to be the fundable deal flows that many investors lament when looking at the technology pipeline of new innovations. Potential benefits received by accelerator applicants are similar to those offered by incubator programs. During the program, accelerators are given access to networking, training and mentorship opportunities to grow their businesses. For those working in technology-based fields, they will receive support in terms of lab spaces and specialized equipment to validate their work. The similarities and differences between incubators and accelerators are summarized in Table 2. One new programme in Malaysia will see the University of Malaya, Malaysia's premier higher education institution broadening its TTO (UMCIC 2018) mission to better integrate the university into the innovation ecosystem with the launching of its own accelerator programme UMXCelerate (UMX). UMX launchpads, wet and dry labs, innovation grants, and mentorship all aim to foster innovation transfer in a wide range of fields, along with of space available for start-ups in its incubator/accelerator in addition to providing access to the University's broad technical expertise and excellent core facilities.

In the final analysis, early stage technology innovations are no doubt considered as high risk for investors. Nevertheless facing up to the challenges of financing the technology gap or valley of death is both the obstacle as well as the goal shared by nascent ventures including startups, promising businesses and new entrepreneurs. In reality, the 'valley' tests the determination, commitment, courage and hard work of every innovator and entrepreneur. This is perhaps, the biggest differentiator between the real entrepreneurs and the wannabes. The typical observation in Malaysia and across the world is that many promising innovations and scientific discoveries die on its way from the ideation to the commercialization stage. Hence, providing a supportive ecosystem by all stakeholders, for these promising startups is vital to help them transition along the commercialization pipeline, thus increasing survival odds. While Malaysia has been very proactive in setting up the supporting ecosystem more needs to be done to unlock private investment into the innovation pipeline. Understanding the barriers to investment, creating new initiatives to set up funds for last mile development of innovations in niche technology areas and opening the market for these new innovations with good deal flows, will be part of this strategy. This will create the platform for opportunity-driven entrepreneurs who will be able to weather the cyclical uncertainties of the fast changing technological landscape and really help to shape the common future.

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ASEAN Activate

Malaysian Global Innovation & Creativity Centre (MaGIC) has forged a strategic partnership with 17 Southeast Asian entrepreneurship community builders; together with MaGIC these partners will form ASEAN Activate, an extension of the MaGIC Activate platform at a regional level.

ASEAN Activate is a new initiative from MaGIC's Corporate Entrepreneurship Responsibility (CER) arm that aims to create a concerted effort in helping Southeast Asia drive its innovation agenda forward. It aims to do so in four key ways: establishing a regional CER network; facilitating cross-border partnerships and deals; providing a regional market access for entrepreneurs and startups; and fostering a united ASEAN innovation ecosystem. Through ASEAN Activate, local activate partners will collaborate with MaGIC to run the Startup Corporate Innovation Challenge in their respective countries.

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