MINISTRY OF HIGHER EDUCATION

ENTREPRENEURSHIP ACTION PLAN HIGHER EDUCATION INSTITUTIONS

EAP-HEIs 2021-2025

Entrepreneurship in Action
to Rejuvenate the Nation

MINISTRY OF HIGHER EDUCATION

ENTREPRENEURSHIP ACTION PLAN
HIGHER EDUCATION INSTITUTIONS (EAP-HEIs)
2021-2025

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EAP-HEIs

ENTREPRENEURSHIP ACTION PLAN

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NORAINI

Foreword from
The Minister of Higher Education, Malaysia

At the outset, I wish to congratulate the Entrepreneurship Unit, Policy Planning and Research Division of the Ministry of Higher Education (MOHE), and the teams from Universiti Kebangsaan Malaysia (UKM), Universiti Teknologi Malaysia (UTM), Universiti Teknologi MARA (UiTM), Universiti Utara Malaysia (UUM) and Universiti Malaysia Kelantan (UMK) supported by directors of all HEIs for turning the Entrepreneurship Action Plan-Higher Education Institutions (EAP-HEIs) 2021-2025 into a reality.

The establishment of the EAP-HEIs 2021-2025 is very timely and extremely relevant. In this changing social and economic landscape, what more with the prevailing pandemic, people are moving into unchartered waters with perhaps an uncertain future amid new challenges. Tackling these challenges would most certainly require a shift in thinking and respond to change. To ensure successful endeavours, we have to equip ourselves with new skills and adapt to different national and international demands. The pertinent skills being mentioned here are entrepreneurship skills. which are in line with the National Entrepreneurship Policy 2030 (NEP 2030). The NEP 2030 aims to shift Malaysia into another gear by making it an entrepreneurship nation by 2030. Inculcating entrepreneurship skills is, therefore, mandatory especially when the fifth objective of NEP 2030 is to produce more graduate entrepreneurs as they will be the 'front liners' or the key players who will contribute directly to the realisation of NEP 2030.

HEIs need to remain competitive to succeed. In so doing, they must enhance the skills and fortify the vision of students by equipping them with the relevant and needed knowledge and skills. For the students to emerge as new, well equipped, young entrepreneurs, we need to ensure that the opportunities to develop them is at maximum capacity. This requirement is the core reason why MOHE and HEIs are working together, and I strongly believe that HEIs are doing a great deal to nurture enterprise and develop business needs among the students via education. It is worth noting that MOHE plays a significant role in guiding HEIs on Entrepreneurship Pathfinder programmes and thus, I am pleased to see how EAP-HEIs 2021-2025 can help greatly in strengthening the afore-mentioned programmes in the effort to produce more graduate entrepreneurs for the country.

In short, we need to strengthen the belief that entrepreneurship skills are an integral part of education with work-related learning, and not merely as some separate, isolated initiatives.

Thank you.

Dr. Noraini Ahmad
Minister of Higher Education, Malaysia

A Note from
The Secretary General

Entrepreneurship education is crucial in moulding the Malaysian youths. It is a conscious effort undertaken by Higher Education Institutions (HEIs) to embed entrepreneurial mindset into students - a characteristic required for them to be future-proof citizens. The dramatic changes in the market force demand efforts to change students from being job seekers to job creators.

Over the years, there have been many successful graduate entrepreneurs produced by HEIs in Malaysia. Their backgrounds vary, stemming from science and technology to social sciences and business management. HEIs in Malaysia, with continued supports from the Ministry, have established a healthy entrepreneurship ecosystem within the institutions themselves as well as within the industry and community.

Despite the progress made, there are still many shifts need to be done to enhance entrepreneurship education. With the advancement of technology, data analytics, and the internet of things, HEIs have to embrace technology and innovation to the fullest. They must further strengthen their entrepreneurship ecosystem, ensure synergistic interactions among the players in the ecosystem, and enhance the expected outcomes resulted from their collaborations with industry, community, and government. These shifts will propel entrepreneurship education into the next phase and ascertain that the knowledge continues to be a game-changer in the Ministry's effort to produce Holistic, Entrepreneurial and Balanced Graduates, a goal which is in tandem with Shift #1, Malaysia Education Blueprint 2015-2025 (Higher Education).

I want to take this opportunity to congratulate everyone involved in making this a reality.

Thank you.

Dr. Mazlan Yusoff
Secretary General
Ministry of Higher Education Malaysia

EXECUTIVE SUMMARY

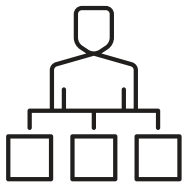
Among the aspirations of Malaysia Education Blueprint 2015-2025 (Higher Education) or MEB (HE) 2015-2025 is to produce balanced and holistic graduates with entrepreneurial mindsets and to nurture 'job creators' rather than just grooming 'job seekers'. These aspirations have been the basis of Entrepreneurship Action Plan for Higher Education Institutions 2016-2020 (EAP-HEIs 2016-2020) and will continue to be the essence of EAP-HEIs 2021-2025. The future of entrepreneurship in Malaysia is promising. More Malaysian entrepreneurs are keen to strengthen their business ventures through innovation and technology while the government is placing more effort in transforming the country into an entrepreneurial nation.

At the HEIs level, various entrepreneurship-related activities and initiatives, including strategic collaborations with government agencies and private corporations, have been organised to promote entrepreneurship as well as produce entrepreneurial graduates and more graduate entrepreneurs. The objectives are to instill entrepreneurship awareness, catalyse action research towards improving conditions and practices of the entrepreneurship education and environments, and further enhance entrepreneurship-related research development and commercialisation. The programmes were successful in which thriving graduate entrepreneurs have been born; many of whom have become the notable chief executive officers of some well reputable companies. Nevertheless, continuous efforts must be carried out to address the issues and challenges at the local and global levels. In sum, EAP-HEIs 2021-2025 is initiated to closely monitor the challenges and opportunities which have emerged in global entrepreneurial setting as well as in fast-changing local entrepreneurial landscape, and eventually, set to produce graduates with entrepreneurial mindset and graduate entrepreneurs who are competitive and sustainable.

DEVELOPMENT APPROACH

The development of EAP-HEIs 2021-2025 consists of four phases which include a series of collaborative and consultative process to attain input and feedback from various groups as well as to empower key stakeholders in the final decision-making process.

PHASE 1
May 2020



Formation of Main Committee

The team comprises the Steering Committee and the Working Groups, who are responsible for outlining concepts, engaging stakeholders and the Ministry, and tracking progress towards establishing the EAP-HEIs 2021-2025. Members of the team include subject matter experts in entrepreneurship from HEIs.

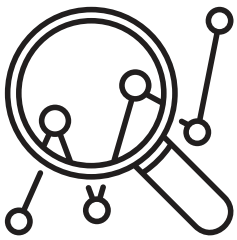
PHASE 2
June - July 2020

Building Stakeholders Support

All key stakeholders have been involved right from the start to enable the vision to be built and ownership to be well accepted.

- Presentation to MOHE
- Surveys involving all Directors of the Entrepreneurship Centres in HEIs
- Engagement Workshops with Top Management of Public HEIs
- Public Dialogues with Entrepreneurs and HEIs

PHASE 3
August - September 2020



Action Planning

Through a series of meetings and workshops, the team constructed the details for the action plan based on the full analysis of context, issues and challenges, and stakeholders' requirements and expectations.

PHASE 4
September - November 2020

Finalisation of EAP-HEIs 2021-2025

The contents of EAP-HEIs 2021-2025 were finalised through another round of public dialogues with stakeholders, government agencies, alumni, and entrepreneurs.

CURRENT PERFORMANCE

At the global level, Malaysia's prospect of becoming an entrepreneurial nation is promising, as indicated by the Global Entrepreneurship Monitor (GEM) with the latest data from 2017 (see Table 1). Malaysia's performance is superior to South Korea in almost all categories except for Entrepreneurial Intentions, which refers to latent entrepreneurs who intend to start a business within three years. However, for the same category, Malaysia lags behind three other southeast Asian countries, namely Thailand, Vietnam and Indonesia. Malaysia also shows slightly lower achievements in the Perceived Opportunities and Perceived Capability categories than these three countries. Nevertheless, Malaysia's overall performance can be considered outstanding in the remaining four categories. In general, Malaysia has a bright prospect in achieving its vision to become an outstanding entrepreneurial nation by 2030.

Table 1:
Selected GEM indicators for five Asian countries for 2017[1]

2017	Entrepreneurial Intentions	Total Early-Stage Entrepreneurial Activity (TEA)	Entrepreneurship as a Good Career Choice	Fear of Failure Rate	Perceived Opportunities	Perceived Capabilities	Motivational Index
Malaysia	17.6	21.6	77.06	44.95	45.06	46.12	9.20
Indonesia	28.1	7.47	70.01	46.66	47.74	57.34	1.72
Thailand	37.4	21.6	74.72	52.69	49.13	48.86	7.90
South Korea	22.8	13.0	47.24	32.16	35.3	45.86	2.93
Vietnam	24.96	23.27	62.11	46.63	46.41	50.03	4.60

[1] Data up until 2017 only as Malaysia has ceased its participation in GEM survey since then.

Source: Global Entrepreneurship Monitor website

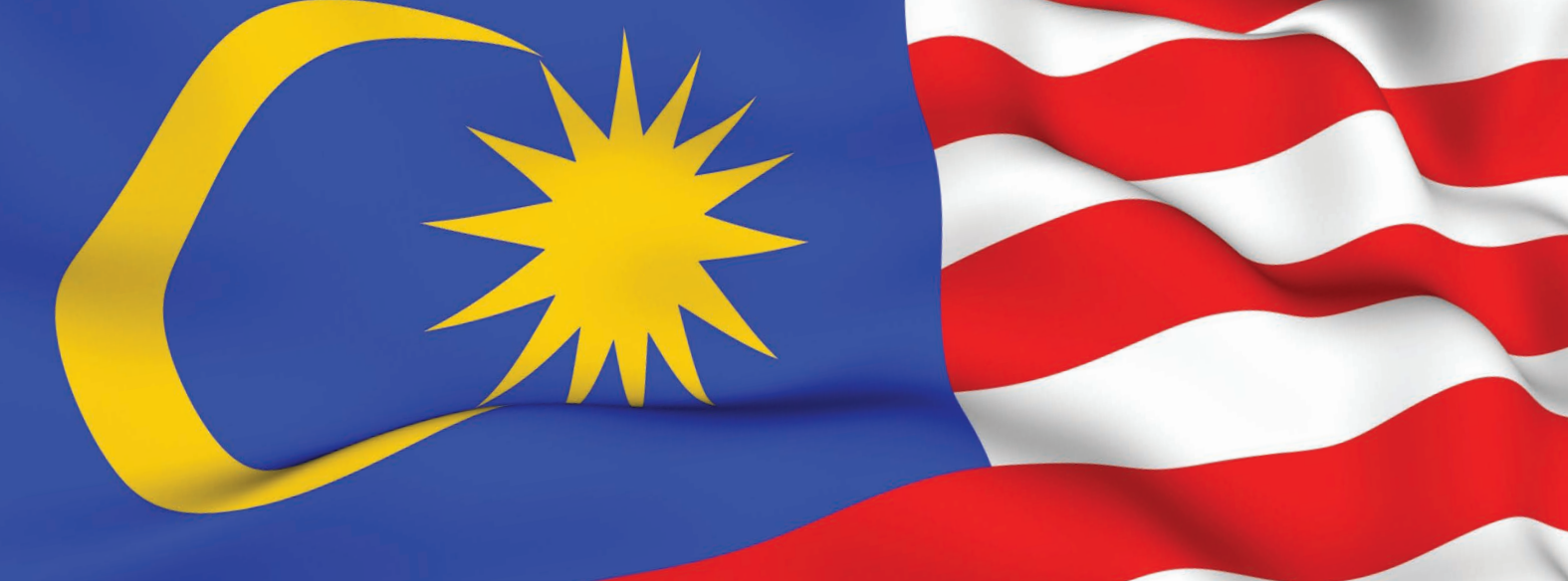


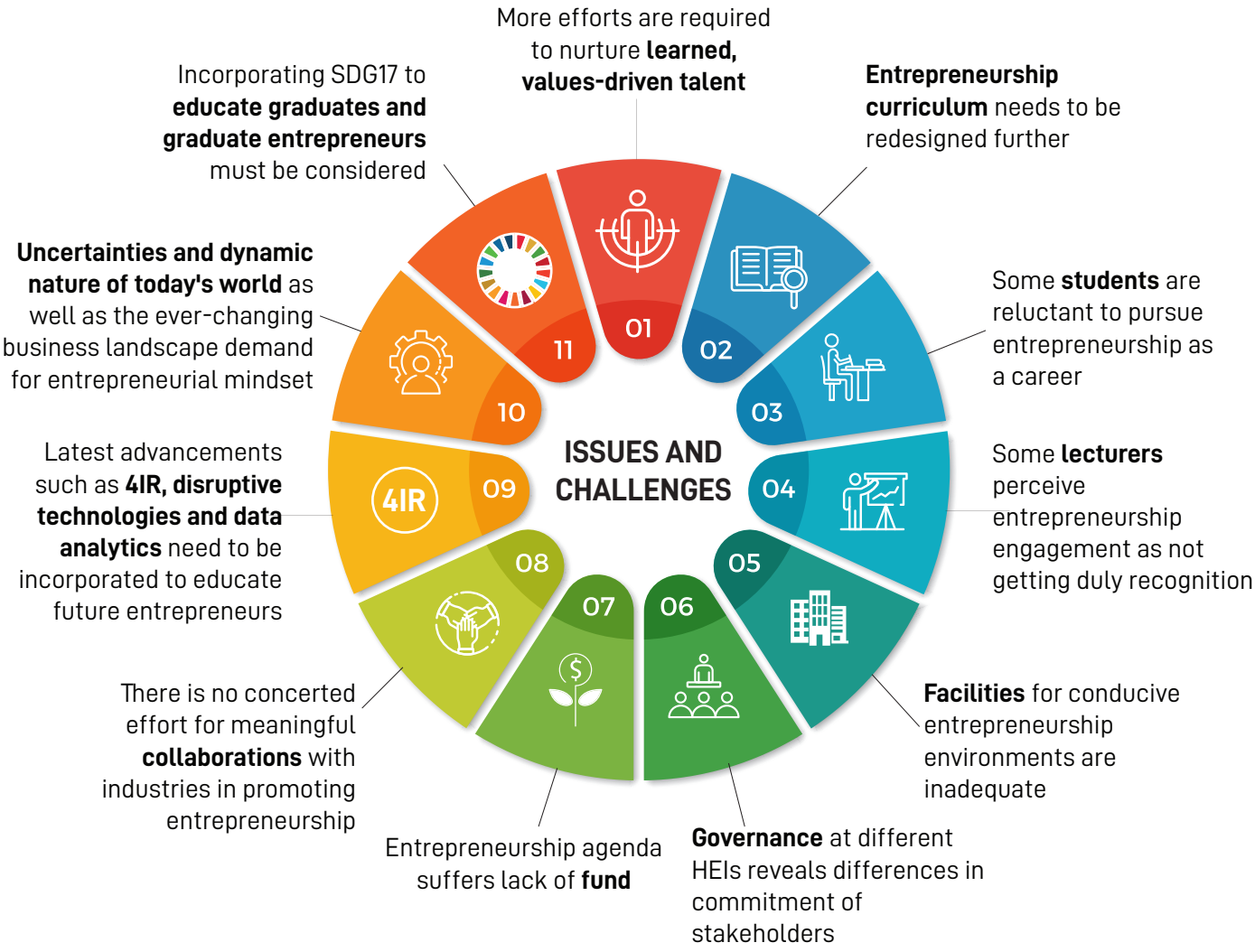
Table 2 summarises four Key Performance Indicators (KPIs) achievement for all HEIs up until 2019. MOHE's support through entrepreneurship programmes conducted in HEIs nationwide has proven to be fruitful, as shown by achievements of KPI 1, Entrepreneurship Awareness among Students, throughout 2016-2019, which surpassed the targets in the last three years. KPI 2 shows that the percentage of Graduate Entrepreneurs exceeds the yearly target and has been rising every year except in 2019. As for KPI 3, the percentage of Student Business has been steadily on the rise and has achieved the targets set for years 2016 and 2019 while slightly below target for years 2017 and 2018. At the same time, KPI 4, Educator with Entrepreneurship Expertise, has shown excellent achievements (significantly beyond targets).

Table 2:
Summarised statistics for the four KPIs from 2016 to 2019

Key Performance Indicator	2016		2017		2018		2019		2020
	TARGET	ACHIEVED	TARGET	ACHIEVED	TARGET	ACHIEVED	TARGET	ACHIEVED	TARGET
Entrepreneurship awareness among students	60%	60% 309,834	70%	75% 390,372	80%	82% 427,343	90%	96.01% 531,513	100%
Graduate entrepreneurs	2.50%	2.50% 3,756	3%	3.10% 4,840	3.50%	5% 6,447	4%	4.63% 7,148	5%
Student businesses	3%	3% 9,998	6%	5% 19,024	9%	7% 30,888	10%	10.20% 49,983	15%
Educators with entrepreneurship expertise	300	2,206	600	1,260	900	1,988	1,200	2,079	1,500

ISSUES AND CHALLENGES

Feedbacks through engagement sessions with stakeholders revealed various scenarios, issues and challenges that provided further input in enhancing EAP-HEIs 2021-2025. The aspirations, strategies and initiatives outlined in EAP-HEIs 2021-2025 are designed to overcome these challenges and produce outcomes that are desired by all. The issues and challenges are summarised below.



ASPIRATIONS

EAP-HEIs 2021-2025 aims to enrich the implementation of entrepreneurship agenda in Malaysian HEIs. The implementation is accomplished by cultivating entrepreneurial mindsets among graduates and producing graduate entrepreneurs with the right attributes, knowledge, and skills to become sustainable, competitive entrepreneurs. With this background, the purpose is for HEIs to be a more effective producer of entrepreneurs who will become the essential engines for the country's technological development and economic growth. EAP-HEIs 2021-2025 plays a critical role in contributing to the achievement of four out of five objectives of National Entrepreneurship Policy 2030, namely Objectives 1, 2, 3 and 5.

Main Objectives

MINISTRY OF ENTREPRENEUR DEVELOPMENT AND COOPERATIVES

NEP 2030

National Entrepreneurship Policy

Malaysia: An Outstanding Entrepreneurial Nation 2030

1. To create a holistic and conducive entrepreneurship ecosystem for sustainable, balanced and inclusive socio-economic development in Malaysia.
2. To develop a Malaysian community with an entrepreneurial mindset and culture.
3. To produce quality, viable, resilient and competitive entrepreneurs with a global mindset.
4. To scale up local enterprises and SMEs.
5. To make entrepreneurship as a preferred career of choice.

Six Strategic Thrusts

1. **Fostering an Entrepreneurship Culture Across All Segments of Malaysian Society**
2. **Optimising the Regulatory Environment and Access to Funding**
3. **Stimulating Holistic and Integrated Entrepreneurship Development**
4. **Strengthening Entrepreneurial Capabilities and Performance of MSMEs**
5. **Accelerating Economic Growth Through Innovation-Driven Enterprise**
6. **Internationalising High Growth Enterprises**

EAP-HEIs 2021-2025 is also built on the foundation of the Malaysia Education Blueprint 2015-2025 (Higher Education) and previous entrepreneurship strategic and action plans. In EAP-HEIs 2016-2020, the Job Creator Framework (JCF) was developed to provide a roadmap for entrepreneurship education at HEIs. The JCF consisted of three (3) primary themes. The first is the Acculturation of Entrepreneurship to inculcate entrepreneurship attributes during the early part of the students' study. The second theme is establishing programmes for strengthening entrepreneurship and providing wide opportunities for entrepreneurship learning and skills to students. The third theme is to enhance entrepreneurship support programmes and support systems for student businesses on campus. The JCF has enhanced the role of entrepreneurship education in the development of graduates at HEIs. To intensify the effort, EAP-HEIs 2021-2025 has introduced several shifts as depicted in Figure 1. Together with the JCF, these shifts will provide the necessary trajectory for entrepreneurship education in HEIs to soar further. The JCF and the shifts will provide the direction in the implementation of the Strategies and Initiatives and will ensure that the goal of producing entrepreneurial graduates and sustainable, competitive graduate entrepreneurs will become a reality.

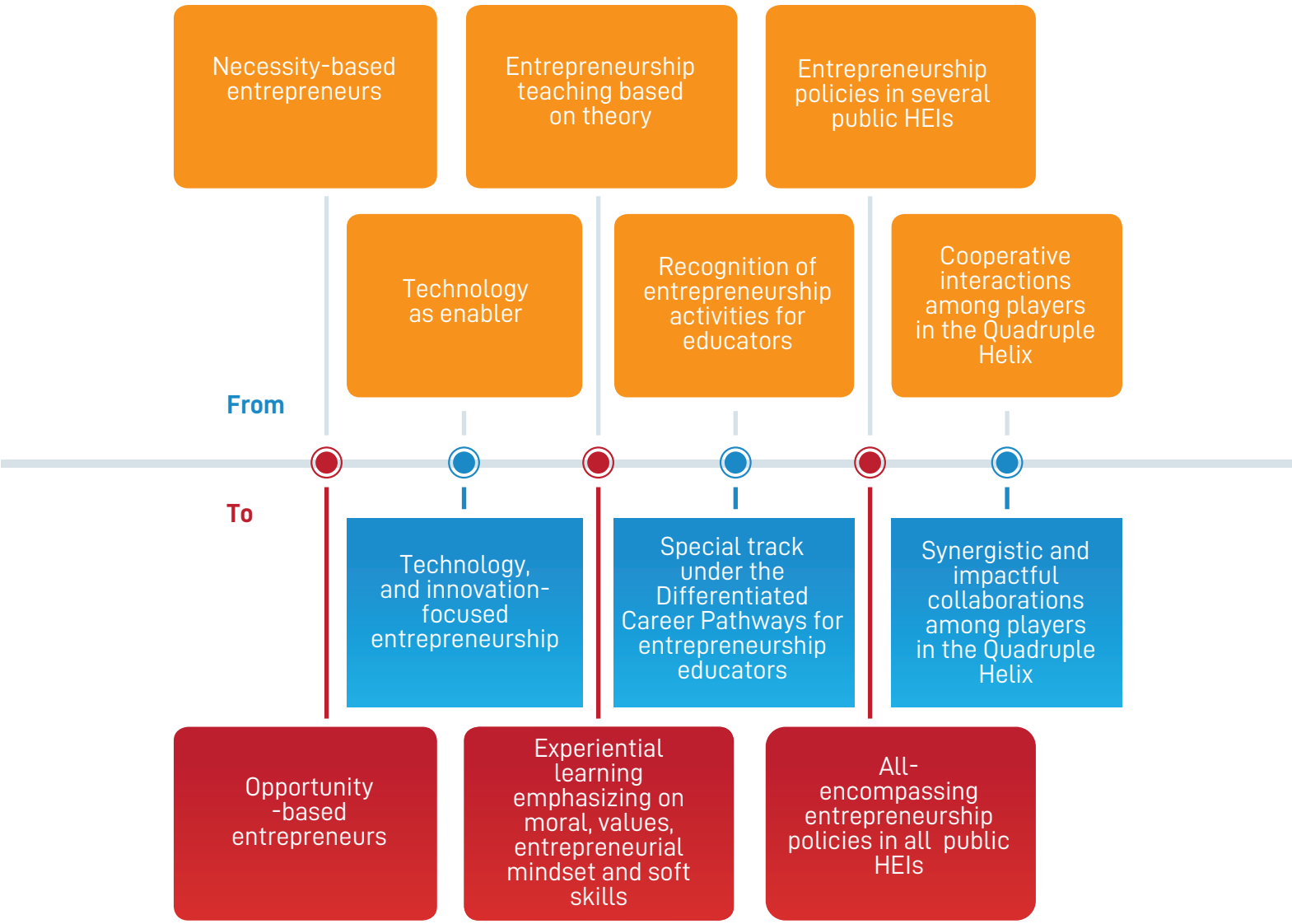


Figure 1: New Shifts for the Job Creator Framework

The EAP-HEIs 2021-2025 Implementation Framework

The Framework is anchored in the desired outcomes of entrepreneurship education in HEIs and ultimately, in the quality of graduates from Malaysian education system.

GOAL

The goal of entrepreneurship education in Malaysian HEIs is to produce entrepreneurial graduates and sustainable, competitive graduate entrepreneurs. Entrepreneurial graduates are graduates who have an entrepreneurial mindset and hence all the attributes of entrepreneurs. At the same time, HEIs are also producing student entrepreneurs and graduate entrepreneurs. The objective is for these entrepreneurs to be competitive and sustainable; that is, they have the capacity to manage their business well into the future, create jobs and contribute to the country's economy. As shown in Figure 2 the goal is driven by three (3) thrusts namely, Thrust 1 Synergistic Entrepreneurial Ecosystem, Thrust 2 Impactful Collaborations, and Thrust 3 Innovation and Technology in Entrepreneurship. The Thrusts are to be implemented through seven (7) Strategies and 28 Initiatives, while the achievements are measured through seven (7) Key Performance Indicators. The Thrusts, Strategies and Initiatives are supported by a strong foundation of governance, together with integrity, values and calculated risks.

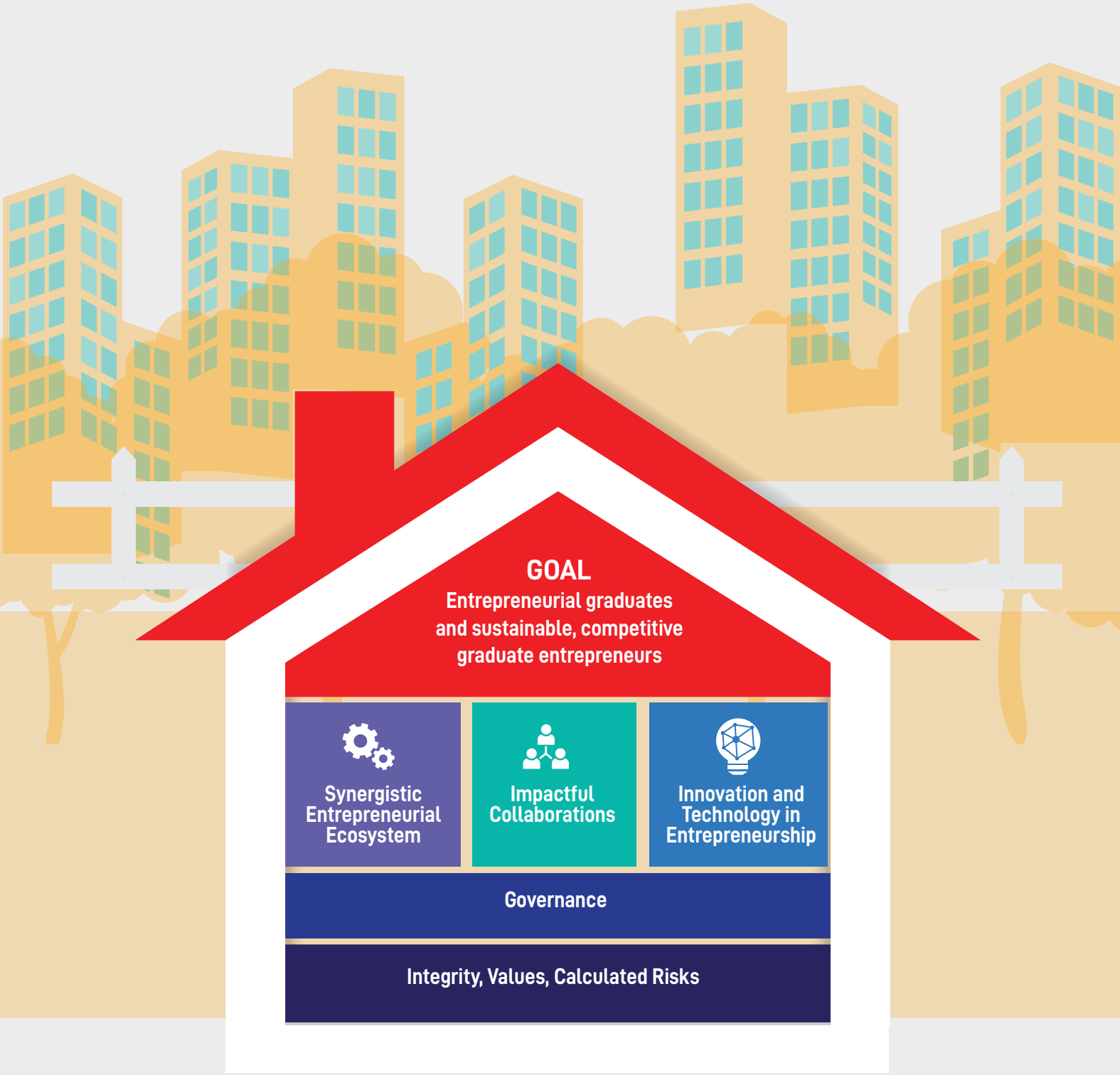


Figure 2: EAP-HEIs 2021-2025 Implementation Framework

Thrust 1: Synergistic Entrepreneurial Ecosystem demands interconnectedness and collaboration among entrepreneurial elements, such as academia, industry, government and community. This thrust presents three (3) strategies that synergise teaching and learning to produce student entrepreneurs who create jobs and enhance educators' expertise in entrepreneurship.

This thrust is driven by sixteen (16) initiatives and measured by three (3) KPIs. The first KPI is the percentage of student entrepreneurs at HEIs conducting business on campus during their study. Second is the percentage of graduate entrepreneurs at HEIs who venture into entrepreneurship after graduation. Third is the number of teaching staff with entrepreneurial expertise.

The three (3) strategies are:

- **Strategy 1:**
  Strengthening Entrepreneurship Teaching, Learning and Research Support System
- **Strategy 2:**
  Developing Students Who Can Create Jobs through Entrepreneurship
- **Strategy 3:**
  Increasing the Number of Educators with Entrepreneurship Expertise

16 Iniatives
3 KPIs

Thrust 2: Impactful Collaborations refer to synergistic collaborate between four (4) elements in the Quadruple Helix consisting of participating HEIs, government, industry and community within the entrepreneurship ecosystem. Impactful collaborations are vital in ensuring quality entrepreneurship education, graduate employability and financial sustainability of HEIs.

Thrust 2 has two (2) strategies, driven by six (6) initiatives and measured by two (2) KPIs. The first KPI is the number of collaborations with agencies, industries and NGOs, and associations with HEIs (local or international). Second is the total number of companies, enterprises or business projects funded through angel investors, venture capitalists, crowdfunding entities, government agency grants, and pitching competition prizes related to entrepreneurship.

The two (2) strategies are:

- **Strategy 4:**
  Fostering Various Collaborations via Entrepreneurship Network
- **Strategy 5:**
  Intensifying Seed Funding for Student Businesses

6 Initiatives
2 KPIs

Thrust 3: Innovation and Technology in Entrepreneurship motivate students to venture into entrepreneurship through innovation and technology. The students are encouraged to be opportunity-based entrepreneurs who embark on business when opportunities arise or are identified instead of necessity-based entrepreneurs who do business for mere survival.

There are two strategies under Thrust 3 which are driven by six (6) initiatives and two (2) KPIs. The first KPI is the number of students engaged in innovation and technology-based programmes in HEIs. Second is the number of student start-ups based on innovation and technology.

The two (2) strategies are:

- **Strategy 6:**
  Encouraging Students to Leverage Innovation and Technology in Entrepreneurship.

- **Strategy 7:**
  Encourage the Establishment of Innovation, Technology and Digitally-Driven Start-Up Enterprises

6 Initiatives
2 KPIs

The foundations of the Framework, which are a pre-requisite to the success of EAP-HEIs 2021-2025, are Governance together with Integrity, Values and Calculated Risks.

Governance

Good governance at the Ministry and the HEIs is a vital, critical success factor in developing and executing viable entrepreneurial action plans at HEIs. The Ministry can leverage on National Entrepreneurship Council for Higher Education Institutions (NECHEI) set up in 2011 to further promote the entrepreneurship agenda and use it as a platform to solve inter-ministerial and inter-agency issues relating to HEI entrepreneurship initiatives. To provide support to HEIs, the Ministry can establish a comprehensive, integrated and uniform reporting system to problem-solve issues and share best practices. At the institutional level, HEIs need to establish clear policies and lines of responsibilities to allow for synergistic interactions among the parties involved and provide a clear career pathway policy to support academics involved in entrepreneurship education.

Integrity, Values and Calculated Risks

Integrity, Values and Calculated Risks are other critical elements that drive the process and outcome of EAP-HEIs 2021-2025 Implementation Framework. The three Thrusts of the Framework, together with the Strategies and Initiatives are to be executed with integrity, driven by values and subjected to an appropriate calculated risk. These critical elements are very much in line with the overall outcome of MEB (HE), which is to produce learned, values-driven talent.

Conclusion

EAP-HEIs 2021-2025 outlines the strategic goals, strategies and initiatives for HEIs in Malaysia to produce entrepreneurial graduates and sustainable competitive graduate entrepreneurs. This action plan emphasises three thrusts: Synergistic Entrepreneurial Ecosystem, Impactful Collaborations, and Innovation and Technology in Entrepreneurship.
For EAP-HEIs 2021-2025 to be successful, it must be communicated and fully embraced by HEIs. HEIs must implement the plan, monitor, evaluate, make ongoing adjustments when necessary and measure the KPI's achievements to assess the effectiveness of the plan. HEIs must be ready and willing to embrace the shifts needed in enhancing the job creator framework. Only then would HEIs contribute to making Malaysia a nation of entrepreneurs, the essential driver in Malaysia's economy.

EAP-HEIs 2021-2025 signifies the highest commitment and confidence of Ministry of Higher Education (MOHE) in achieving the ambitious target to produce future generation of Malaysian entrepreneurs, shaped and nurtured during their studies at the HEIs, through sustained, systematic and dedicated efforts.

CHAPTER

A

INTRODUCTION
CURRENT STATUS
ACHIEVEMENTS
ISSUES AND CHALLENGES

"The entrepreneur always searches for changes, responds to it, and exploits is as an opportunity."

– Peter Drucker -

INTRODUCTION

The economic development and performance of a nation are often tied to its entrepreneurship activities since these activities boost productivity and competitiveness. Ministry of Higher Education (MOHE) has long been seriously promoting entrepreneurship education at the tertiary level as evident by the Entrepreneurship Development Policy for Higher Education Institutions in 2010 (EDP-HEIs 2010). The main objectives are:

1. to produce quality graduates who are equipped with entrepreneurial mindset, attributes and values.

2. to increase the number of graduates who venture into entrepreneurship upon graduation.

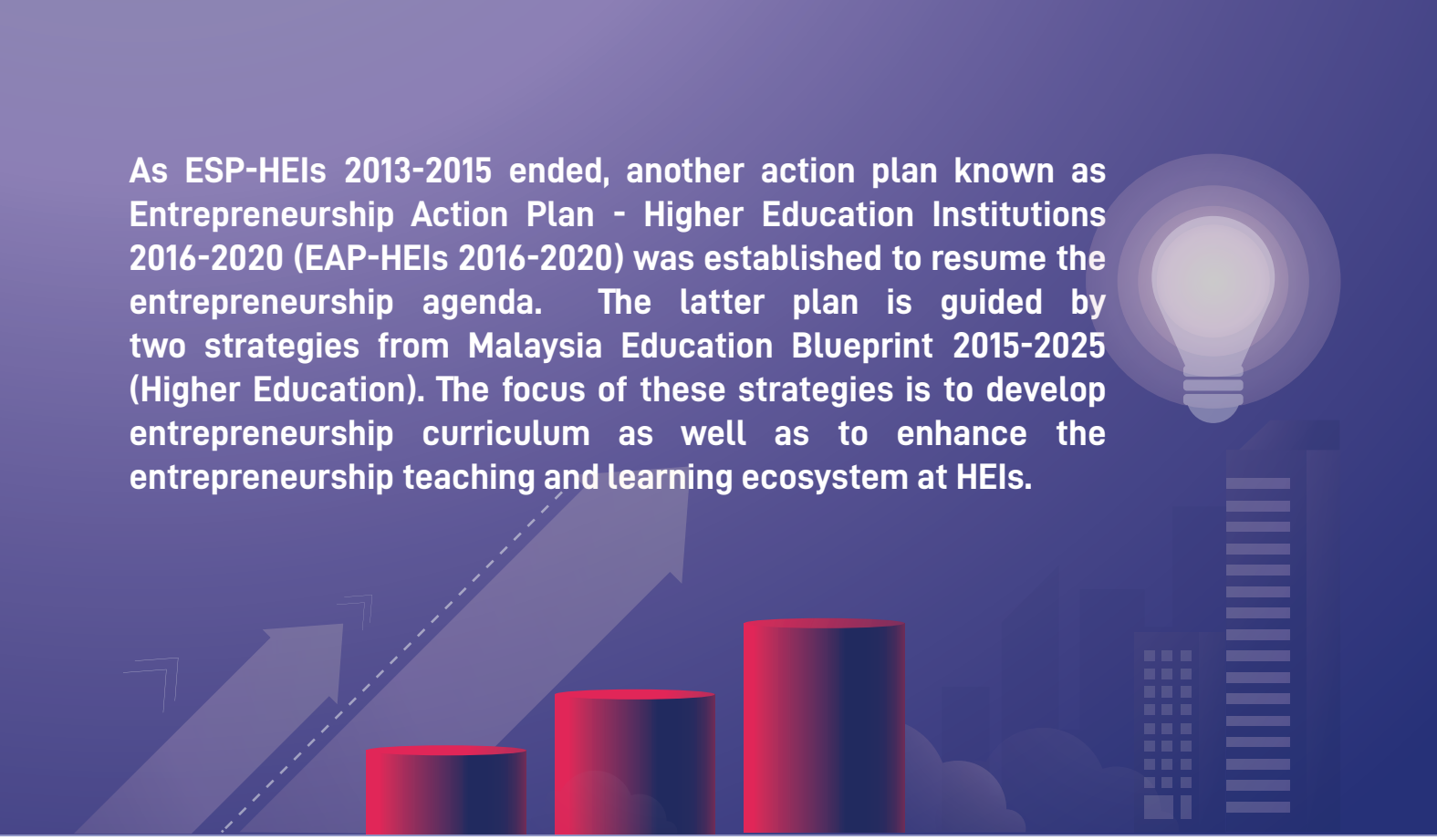
3. to train academics, researchers and administrators to be competent in entrepreneurship.

EDP-HEIs 2010 is preceded by Entrepreneurship Strategic Plan for Higher Education Institutions 2013-2015 (ESP-HEIs 2013-2015) which listed six core pillars and 15 strategies as its foundation. The plan serves as the main source of reference that helps to guide HEIs in pursuing the entrepreneurship agenda at respective institutions. Its noticeable achievement is the establishment of entrepreneurship development centres at all public HEIs, which have been very active in providing training and mentoring services to students. To date, the entrepreneurship development centres can be found on-campus at all 20 public universities, 36 polytechnics and 104 community colleges.

The formation of National Entrepreneurship Council for Higher Education Institutions (NECHEI) in 2011 is in line with the effort of implementing entrepreneurship agenda on campus. NECHEI is represented by 15 corporate leaders and senior Government officials and it aims to foster a better relationship between the Government, entrepreneurs, alumni and students in cultivating the entrepreneurship culture at HEIs. Members of NECHEI act as advisors to the Ministry in contributing ideas and thoughts that help in promoting entrepreneurship programmes and activities towards producing graduates with entrepreneurial mindsets.

The introduction of Malaysia Education Blueprint 2015-2025 (Higher Education) further enhanced the importance of entrepreneurship education within the education system. Entrepreneurship has been given a top priority as it is listed as part of Shift 1 which aims to develop Holistic, Entrepreneurial, and Balanced Graduates. The objective of Shift 1 is to improve graduates' quality across intellectual, spiritual, emotional and physical dimensions, to enable them to thrive in today's complex global economy and contribute to the betterment of society.

As ESP-HEIs 2013-2015 ended, another action plan known as Entrepreneurship Action Plan - Higher Education Institutions 2016-2020 (EAP-HEIs 2016-2020) was established to resume the entrepreneurship agenda. The latter plan is guided by two strategies from Malaysia Education Blueprint 2015-2025 (Higher Education). The focus of these strategies is to develop entrepreneurship curriculum as well as to enhance the entrepreneurship teaching and learning ecosystem at HEIs.



These strategies are pursued through four initiatives:

01

to implement High Impact Educational Practice (HIEP) that integrates elements of entrepreneurship within the curriculum and across all disciplines of studies.

02

to pursue Job Creator Framework which covers 3E – Empower, Enculture and Equip.

03

to improve the ecosystems that support the development of student entrepreneurs.

04

to enhance competency of educators in entrepreneurship.

EAP-HEIs 2016-2020 aims at ensuring:

100% of students are exposed to the culture and attributes of entrepreneurship

5% of graduates venture into entrepreneurship upon graduation

15% of students are involved in entrepreneurship while still on campus

1,500 academic staff are trained in entrepreneurship

CURRENT STATUS AND ACHIEVEMENTS

Global Level

Based on the reports published by Global Entrepreneurship Monitor (GEM), the selected indicators show that entrepreneurship has a great prospect to flourish in Malaysia (see Table A-1). In most categories, Malaysia surpassed South Korea, which is an advanced, innovative and highly industrialized country. Although Malaysia trailed behind the four Asian countries in terms of entrepreneurial intentions that account for latent entrepreneurs who intend to start a business within three years, the country was reported to do better in other categories.

For example, for Total Early-Stage Entrepreneurial Activity (TEA), which indicates the percentage of the population who is either a budding entrepreneur or owner-manager of a new business, Malaysia registered quite a high index, comparable to Thailand and Vietnam, which are known to be entrepreneurial nations.

The future of entrepreneurship looks very promising, as evidenced by the high index of Entrepreneurship as a Good Career Choice Rate – the highest among all countries. While the fear of failure seems to be higher in Malaysia than South Korea, the same sentiment was also reported in other Asian countries.

The high indices recorded for perceived opportunities and perceived capabilities suggest Malaysians' general, strong confidence to venture into business. Given the high motivational index, Malaysian entrepreneurs seemed to pursue improvement-driven opportunities that favour adopting innovation and technology. Such findings augur well with the Government's effort to transform Malaysia into an entrepreneurial nation.

Source: (https://www.gemconsortium.org/)

Table A-1: Selected GEM indicators for five Asian countries for 2017 [1]

2017	Entrepreneurial Intentions	Total Early-Stage Entrepreneurial Activity (TEA)	Entrepreneurship as a Good Career Choice	Fear of Failure Rate	Perceived Opportunities	Perceived Capabilities	Motivational Index
Malaysia	17.6	21.6	77.06	44.95	45.06	46.12	9.20
Indonesia	28.1	7.47	70.01	46.66	47.74	57.34	1.72
Thailand	37.4	21.6	74.72	52.69	49.13	48.86	7.90
South Korea	22.8	13.0	47.24	32.16	35.3	45.86	2.93
Vietnam	24.96	23.27	62.11	46.63	46.41	50.03	4.60

[1] Data up until 2017 only as Malaysia has ceased its participation in GEM survey since then.
Source: Global Entrepreneurship Monitor website

Notes:

- **Entrepreneurial Intentions Rate:**
  Percentage of 18-64 age group population (individuals involved in any stage of entrepreneurial activity excluded) who have entrepreneurial intentions.
- **Total early-stage Entrepreneurial Activity (TEA) Rate:**
  Percentage of 18-64 age group population who are either a nascent entrepreneur or owner-manager of a new business.
- **Entrepreneurship as a Good Career Choice Rate:**
  Percentage of 18-64 age group population who agree with the statement that in their country, most people consider starting a business as a desirable career choice.
- **Fear of Failure Rate:**
  Percentage of 18-64 age group population (individuals involved in any stage of entrepreneurial activity excluded) who indicate that fear of failure would prevent them from setting up a business.
- **Perceived Opportunities Rate:**
  Percentage of 18-64 age group population (individuals involved in any stage of entrepreneurial activity excluded) who see good opportunities to start a firm in the area where they live.
- **Perceived Capabilities Rate:**
  Percentage of 18-64 age group population (individuals involved in any stage of entrepreneurial activity excluded) who believe they have the required skills and knowledge to start a business.
- **Motivational Index:**
  Percentage of those involved in TEA that are improvement-driven and opportunity motivated, divided by the percentage of TEA that is necessity motivated.

National Level

Table A-2 summarises selected indicators for Malaysia over four years, as reported by Global Entrepreneurship Monitor (GEM). Based on historical trends, Malaysia seems to be moving in the right direction as far as entrepreneurship activities, aspirations, attitudes and perceptions are concerned. Although the general trend seems to go down from 2014 to 2015, almost all indicators have picked-up from 2016 to 2017.

The entrepreneurial intentions are at the highest level ever in 2017, a good sign for entrepreneurship to grow. A sharp increase in TEA from 2016 to 2017 implies the positive outcome of the Government's effort in supporting entrepreneurship in Malaysia.

The prospect of entrepreneurship looks very promising, as reflected by the high index of people who regard entrepreneurship as the right career choice, a sign of recognition for entrepreneurship to be a preferred career. Improvement in the motivational index suggests Malaysians are improvement-driven entrepreneurs who offer rooms for innovation and technology. Even through the fear of failure rate was high in 2017, the increase in both perceived opportunities and capabilities indicates that Malaysians are ready to take entrepreneurship to the next level.

Table A-2: Selected GEM indicator for Malaysia for 2014 to 2017[1]

	2014	2015	2016	2017
Entrepreneurial Intentions	11.63	5.61	4.86	17.61
Total Early-Stage Entrepreneurial Activity (TEA)	5.91	2.93	4.7	21.6
Entrepreneurship as a Good Career Choice	50.37	39.28	44.1	77.06
Fear of Failure Rate	26.78	27.68	36.68	44.95
Perceived Opportunities	43.4	28.24	25.43	45.06
Perceived Capabilities	38.4	27.83	28.34	46.12
Motivational Index	3.65	4.9	3.7	9.22

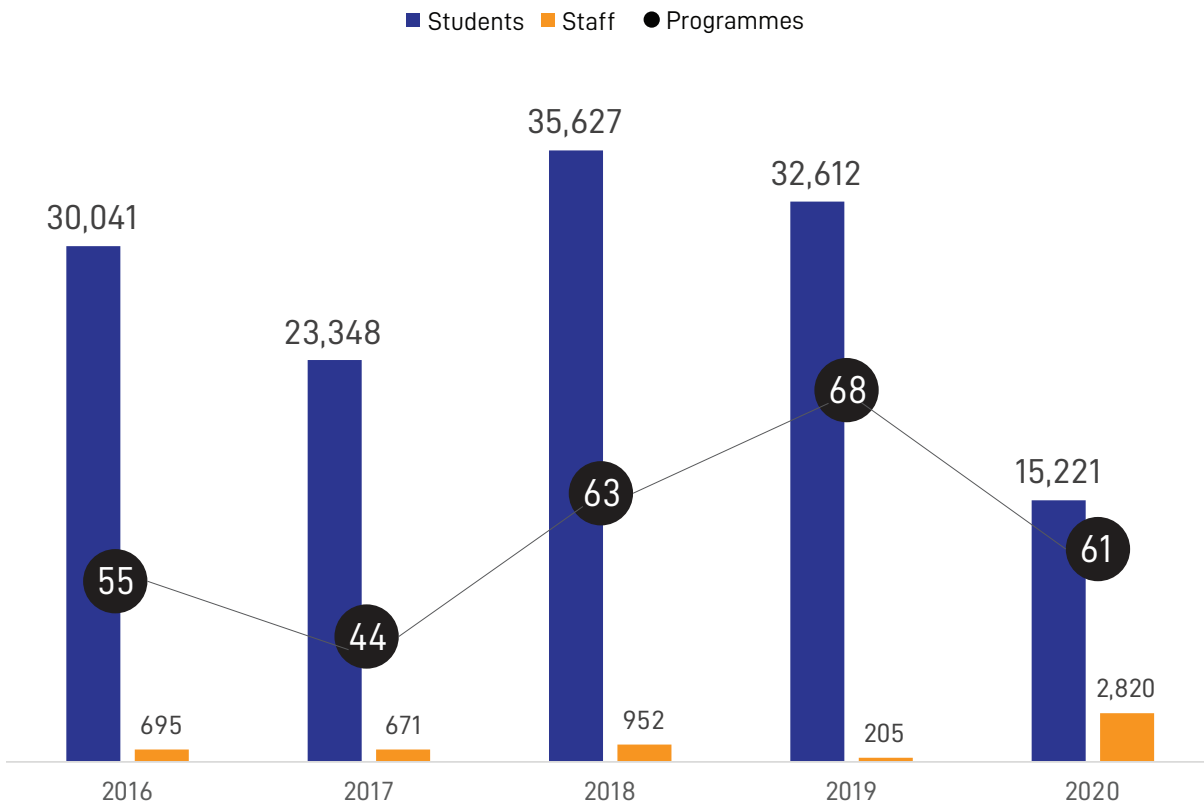
[1] Data up until 2017 only as Malaysia has ceased its participation in GEM survey since then.
Source: Global Entrepreneurship Monitor website

Institutional Level

At HEIs level, various programmes and activities have been organised by the entrepreneurship centres to expose students to the world of entrepreneurship. Some of these programmes have benefitted from the collaboration between HEIs and their strategic partners, which are Government agencies and private corporations. Numerous programmes have been organised at respective institutions in line with the effort to enhance the students' appreciation towards entrepreneurship.

These programmes are important as they provide a platform for students to experience entrepreneurship first-hand. The Ministry has also played a significant role by supporting various entrepreneurship-related activities at campuses across the country, as shown in Table A-1. The programmes are categorized as introductory, intermediate, and advanced levels and are organised both at institutional and national levels. These programmes benefit both students and staff, and they help to contribute to the achievement of KPIs.

Table A-1:
Number of students and staff in MOHE related programmes at HEIs from 2016 to 2019



Due to the COVID-19 pandemic, many programmes and activities for the year 2020 need to be scaled down and postponed. Many HEI campuses are closed due to the Movement Control Order (MCO) enforced by the Malaysian Government. Nonetheless, to not disrupt the learning process, almost all entrepreneurship centres begin to organise their activities online. These centres continue to offer their services to students to ensure continuous effort in promoting the entrepreneurship agenda at their respective institutions.

Table A-3:
Summarized statistics for the four KPIs from 2016 to 2019

Key Performance Indicator	2016		2017		2018		2019		2020
	TARGET	ACHIEVED	TARGET	ACHIEVED	TARGET	ACHIEVED	TARGET	ACHIEVED	TARGET
Entrepreneurship awareness among students	60%	60% 309,834	70%	75% 390,372	80%	82% 427,343	90%	96.01% 531,513	100%
Graduate entrepreneurs	2.50%	2.50% 3,756	3%	3.10% 4,840	3.50%	5% 6,447	4%	4.63% 7,148	5%
Student businesses	3%	3% 9,998	6%	5% 19,024	9%	7% 30,888	10%	10.20% 49,983	15%
Educators with entrepreneurship expertise	300	2,206	600	1,260	900	1,988	1,200	2,079	1,500

Table A-3 summarises the achievement of all HEIs up until 2019. The statistics shows that the institutions have surpassed the annual target of all the four Key Performance Indicators (KPIs) on aggregate. All HEIs have made basic entrepreneurship as a mandatory subject for all students across their studied programmes. As a result, the number of students being exposed to entrepreneurship has increased over the years.

This achievement is evident in KPI 1. For KPI 2, the number of graduate entrepreneurs has also risen from 3,756 in 2016 to 7,148 in 2019, which surpasses the target of 6,270 (4% of total graduates). The number of students doing business while studying has also grown from 9,998 in 2016 to a sharp increase of 49,983 in 2019. Up till 2019, the percentage of academics who have received trainings in entrepreneurship has reached 2,079, way above the 1,500 target.

Notable Programmes

Ministry of Higher and Education (MOHE) has rolled out many programmes to support entrepreneurship initiatives at the national level. The given support has been a focal point for HEIs to galvanise their efforts at the institutional level. Some notable programmes implemented at the national and institutional levels are discussed in the following paragraphs.

Ministry of Higher Education (MOHE) Entrepreneurship Month

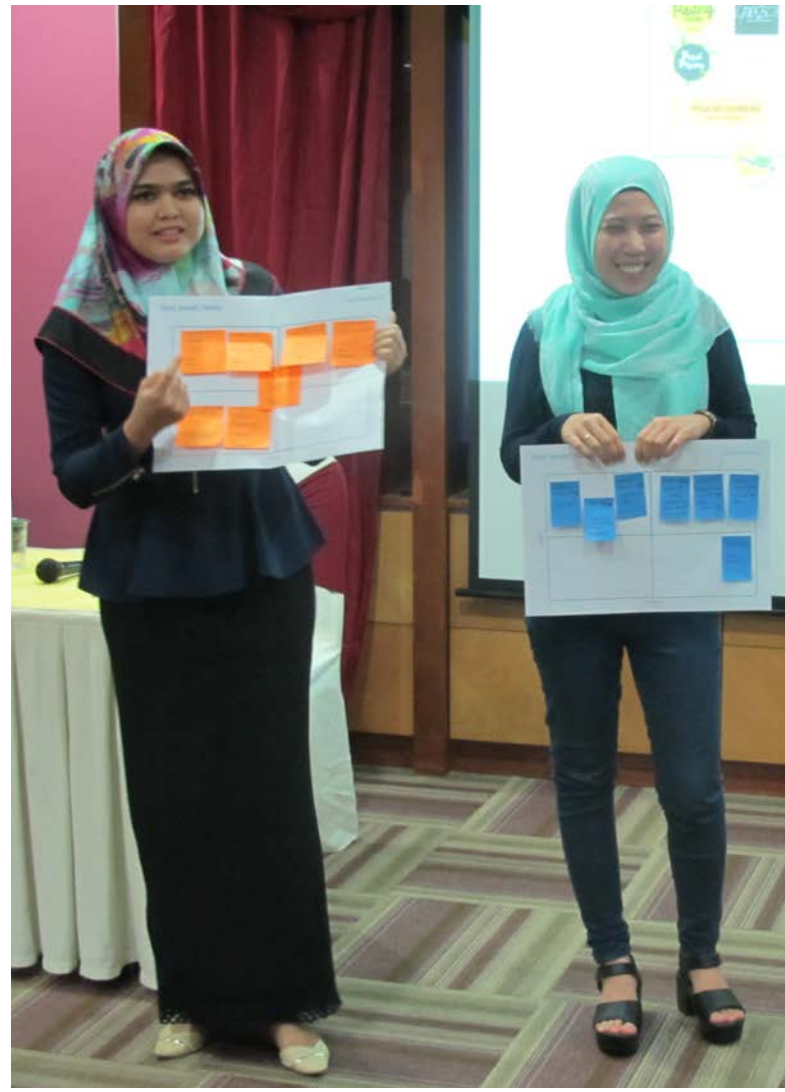
Starting 2017, MOHE has dedicated the month of October as the entrepreneurship month throughout HEIs across the country. During this period, various entrepreneurship-related activities have been organised by all public HEIs both at institutional as well as national levels. Events such as motivational talks by prominent entrepreneurs, skill development and training workshops, student entrepreneur showcases and many more have been organised with the intention of creating awareness, cultivating interest and celebrating the success of student entrepreneurs across the nation.

Ministry of Higher Education Innovative Entrepreneurs Award

The competition is organised in support of Initiative 3 of EAP-HEIs 2016-2020, which aims at enhancing the ecosystems that support the development of student entrepreneurs. The purpose of the competition is also to foster and develop entrepreneurial values and attitudes among students. The competition provides a platform for students to express their ideas and creativity in developing products and services that can be commercialised. Winners are chosen based on innovative ideas that are highly competitive and marketable.

Entrepreneurial Educator Enhancement Programme (3EP)

The programme is organised to improve competency and effectiveness of academics and administrative staff in advising and mentoring student entrepreneurs. It is organised in collaboration with Universiti Kebangsaan Malaysia, Universiti Teknologi MARA and University College Dublin. The modules are designed to improve the participants' knowledge and skills in entrepreneurship. This programme's objective is to increase the number of qualified staff capable of teaching entrepreneurship.



Ministry of Higher Education Entrepreneurial Award (MEA)

The award acts as a catalyst to create a conducive entrepreneurial ecosystem and holistic entrepreneurship development in Malaysian Higher Education Institutions (HEIs). The award is adapted from Times Higher Education "Entrepreneurial University Award of the Year," sponsored by National Centre for Entrepreneurship in Education, United Kingdom. Five categories of the award are as follows:

01 **Category A:**
Institutional Awards

02 **Category B:**
Outstanding Student Enterprise Award

03 **Category C:**
Outstanding Graduate Enterprise Award

04 **Category D:**
Outstanding Entrepreneurship Mentor Award

05 **Category E:**
Outstanding Student Social Entrepreneurship Award

PolyCC Incubator Classroom (PCCIC)

Formerly known as Community College Incubator Classroom (CCIC), the programme started in 2015. In that year, 82 businesses were established, followed by 93 in 2016, 96 in 2017, 98 in 2018 and 140 in 2019. The students conducted businesses in areas related to the field of studies at polytechnics or community colleges. The incubators are located on-campus and provide a real business simulation that exposes students to a real-world business environment. A mentor, who is either a staff member or successful entrepreneur from the industry, is appointed to assist and train students. The objective of this programme is to groom student entrepreneurs starting from the first semester until they graduate. Once these students graduated, they continue to manage the business outside campus. Every two years, the incubator students will participate in the SME Bank 90-Day Business Challenge programme organised by Department of Polytechnic and Community College Education (JPPKK) and SME Bank to pitch their businesses and obtain funds from agencies under Ministry of Entrepreneur Development and Cooperative (MEDAC) to sustain the ventures.

Entrepreneurial Leadership Programme (ELP)

It is one of the Ministry's effort to improve the competence of entrepreneurs and administrators with entrepreneurial mindset in HEIs. The ELP programme implementation aligns with the initiatives outlined in Shift 1 of Malaysia Education Blueprint 2015-2025 (Higher Education).

The initiatives were incorporated as the main objective of Entrepreneurship Action Plan 2016-2020 which is to cultivate entrepreneurial mindset throughout the higher education system in order to produce holistic, entrepreneurial and balanced graduates.The ELP programme aims to provide participants with learning experience on creative and effective management as well as on pedagogical methods and approaches meant for managers and administrators. The participants are leaders who are responsible for the application of values and attributes supportive to entrepreneurial ecosystem development at their respective institutions and organisations. They felt that the modules were relevant, and the experiential learning method employed met the current needs of entrepreneurial leadership.

University to Community: Social Entrepreneur @ Urban Community

It is a social entrepreneurship programme organised by Universiti Pendidikan Sultan Idris with the objective of engaging students to help solve social issues through entrepreneurship activities. The student entrepreneurs share their knowledge and experience in helping the community to set business ventures. In so doing, they help to create job opportunities and contribute to increase the household income. The programme provides economic benefits to students and the community and helps to transform the students' mindset and business model in the field of entrepreneurship through fieldwork sessions as social entrepreneurs. The student entrepreneurs are also encouraged to transfer their knowledge and skills to the targeted community while at the same time, are provided with opportunities to grow their business within the selected community.

Family Business Enhancement Programme

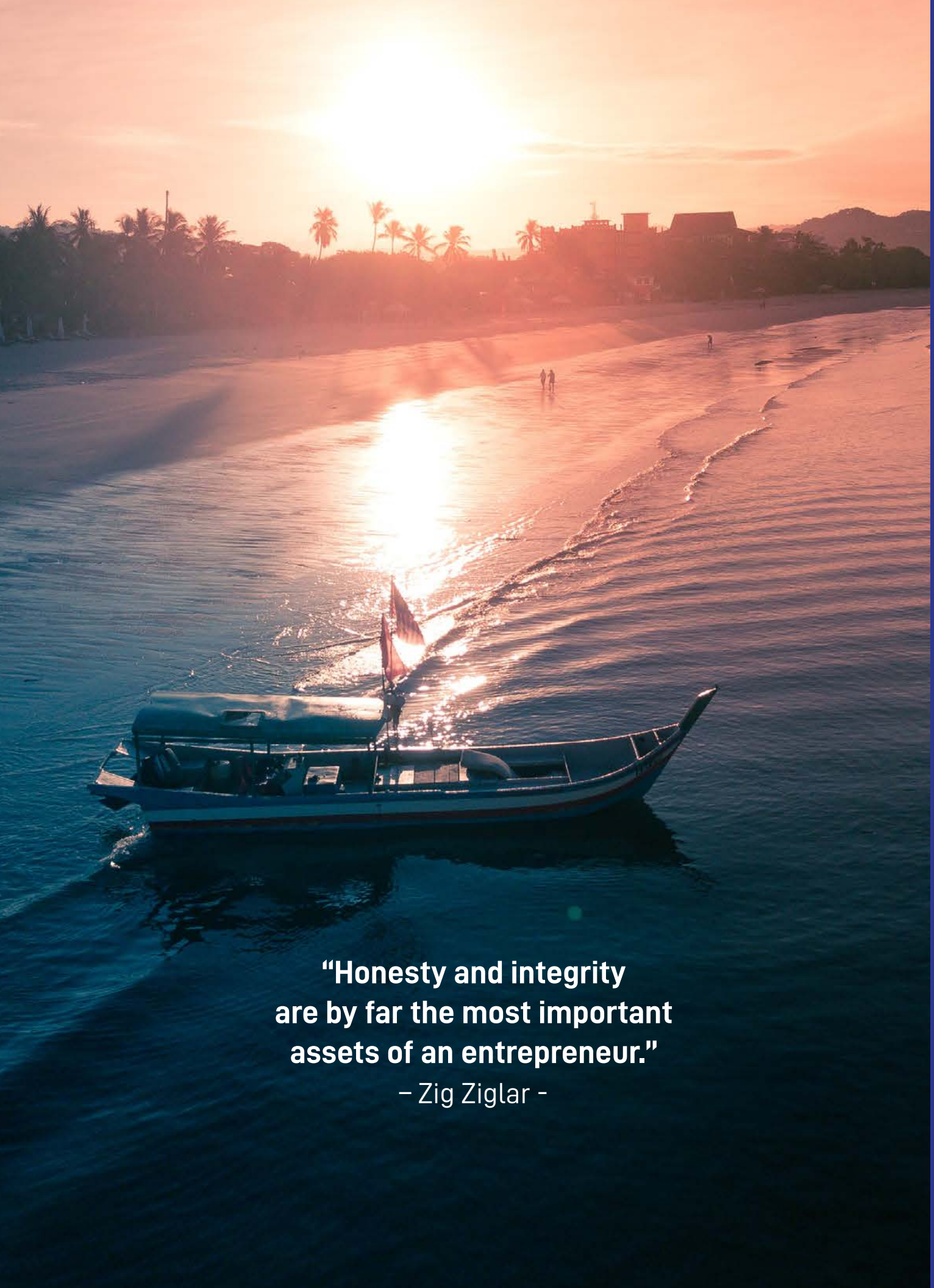
It is a programme organised by Universiti Kebangsaan Malaysia (UKM) that targeted students whose families run a business. The programme helped them to upgrade their businesses to a higher level using digital platforms. A total of 30 students and six supervisory mentors from six universities which are Universiti Kebangsaan Malaysia (UKM), Universiti Teknologi Malaysia (UTM), Universiti Pendidikan Sultan Idris (UPSI), Universiti Sains Malaysia (USM), Universiti Malaysia Terengganu (UMT), and Universiti Malaysia Sabah (UMS) have participated in the programme. On average, the participants consist of students from micro-entrepreneurship background and fall under the B40 group. The programme helped guide both the students and their families to improve their business operations by applying the knowledge and skills acquired from the training programme.

Siswapreneur Showcase

It is an event organised by the Ministry in collaboration with local HEIs to provide a platform for student entrepreneurs to showcase their products and services to the public. It is usually organised in five zones divided into the northern, central and southern regions as well as the East Coast, Sabah and Sarawak. The event took place in well known shopping complexes such as Berjaya Times Square, Kuala Lumpur; Plaza Angsana, Johor Bahru; Mydin Mall, Bukit Mertajam and Plaza Merdeka, Kuching. The event allows students to get first-hand experience in applying their entrepreneurship knowledge and interacting directly with customers. It is meant to boost the students' confidence and inspire them to venture into entrepreneurship upon graduation.

Siswapreneur Business Ethics and Compliance (SBEC)

The Ministry, in collaboration with Universiti Sains Islam Malaysia (USIM), implemented a series of programme on ethical compliance in conducting business. This programme focused on educating student entrepreneurs to practise noble principles and values in accordance with their role as entrepreneurs. Eight special modules were designed to meet the Siswapreneur Business Ethics and Compliance (SBEC) programme needs. The modules offered were flexible as they could be added and expanded based on current needs. The goal of the course is to ensure that participants understand the basic rules in establishing and conducting their business according to business rules and ethics.

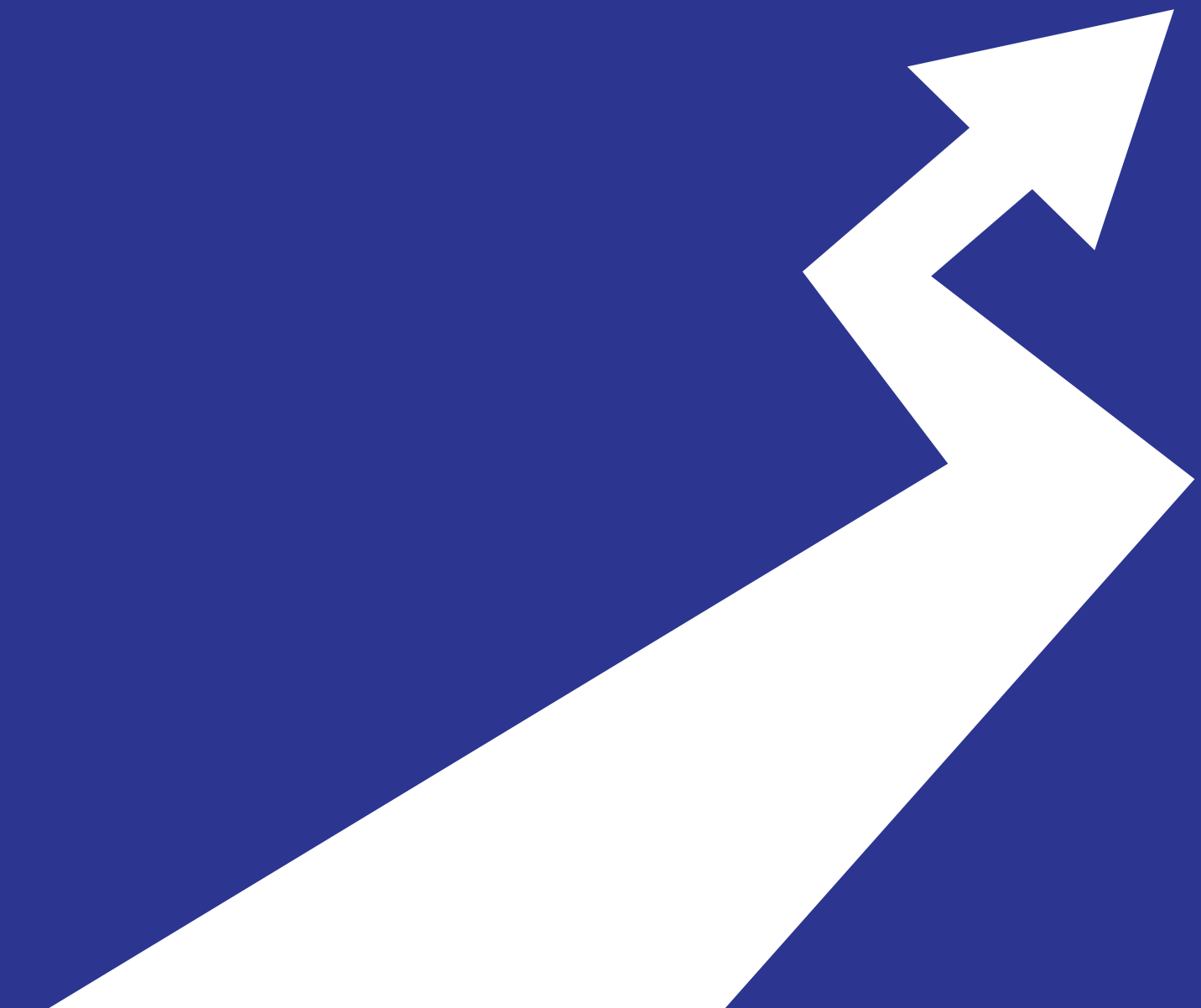


“Honesty and integrity are by far the most important assets of an entrepreneur.”

– Zig Ziglar -

Success Stories

The Malaysian Higher Education Institutions' ecosystem has managed to produce several successful graduate entrepreneurs. These are their stories.

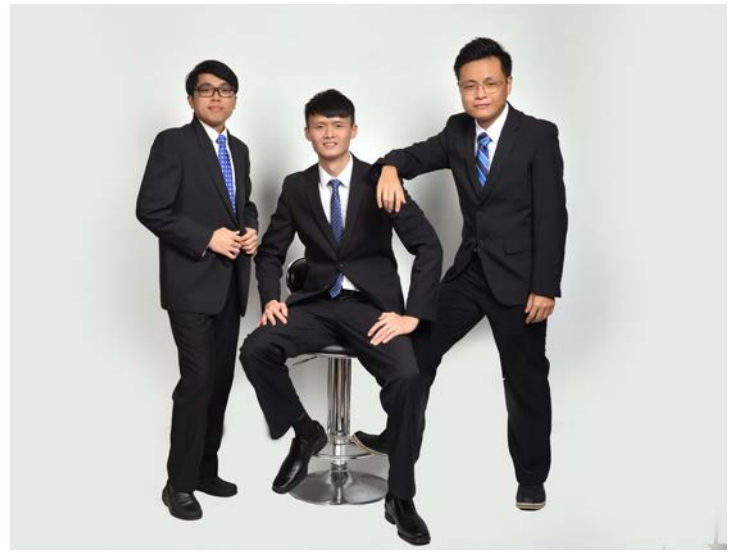


Mr Arif Tukiman, CEO of Runcloud.io

RunCloud is a SaaS company which provides server management panels to developers. The company works on Simplifying Cloud Server Experience for developers. Runcloud has nearly 300,000 clients all over the globe and its CEO, Mr. Arif Tukiman was on the frontpage of Forbes 30 under 30 Asia in 2020. He graduated from Univesiti Teknologi Malaysia (UTM) with Bachelor's in Computer Science and Master in IT Entrepreneurship.

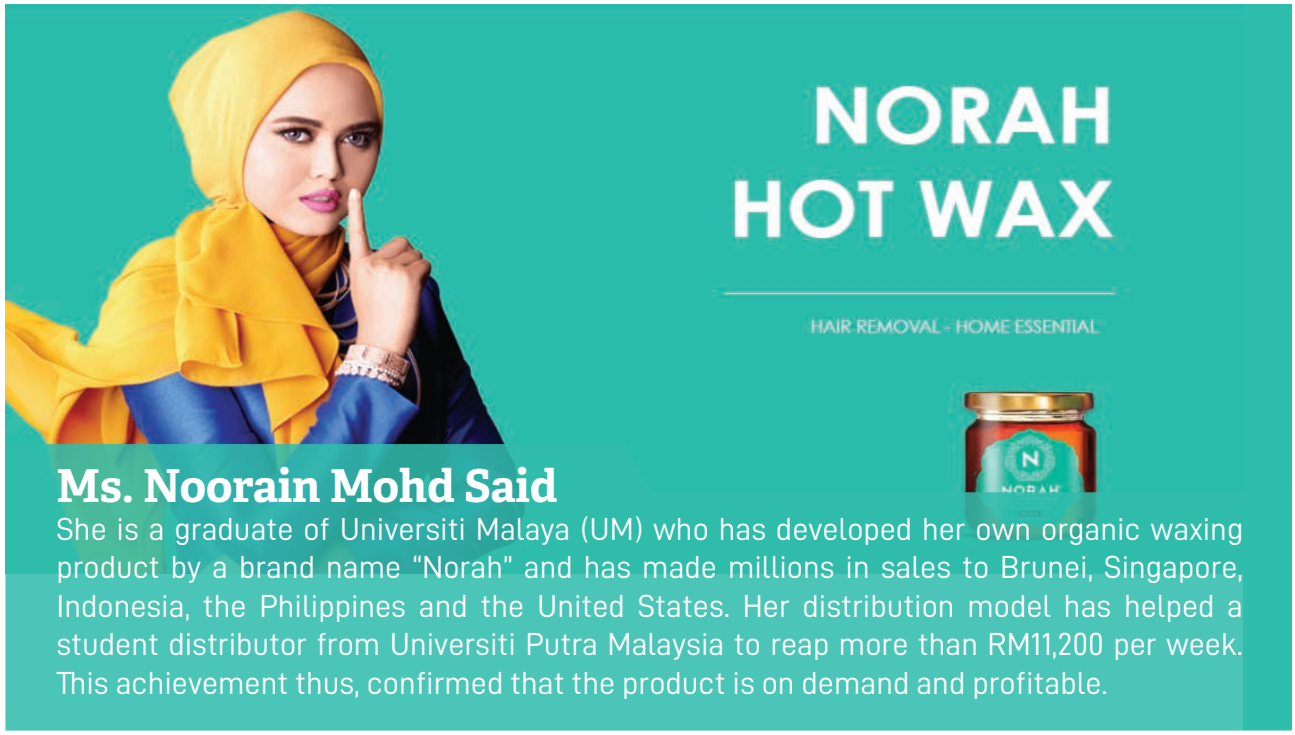
Cheok Ming Jin, Chik Sheng Fei and Lim Thol Yong,
founders of Charby Sdn. Bhd.

The three founders are graduates in Electronic Engineering and Mechatronic Engineering from Universiti Teknologi Malaysia. Their technologically innovative products and innovative marketing were highlighted through Indiegogo, a crowdfunding platform. They have gained more than nine-fold in their bid to get funding. Charby Sense, the world smartest auto cut-off cable, had targeted only USD7 thousand but managed to raise more than USD100 thousand and another product, Charby Pico, gained more than fourfold through the same platform.



Mr. Fahmy Rayyan Hamdan

He is a 23-year-old graduate from Universiti Teknologi MARA (UiTM) with a Diploma in Political Science and Public Administration. His company, Jiwa Generasi Sdn Bhd, specialises in the extraction of copper from e-waste. He has garnered more than RM5 million in annual revenue and half a million ringgit in profit.



Ms. Noorain Mohd Said

She is a graduate of Universiti Malaya (UM) who has developed her own organic waxing product by a brand name "Norah" and has made millions in sales to Brunei, Singapore, Indonesia, the Philippines and the United States. Her distribution model has helped a student distributor from Universiti Putra Malaysia to reap more than RM11,200 per week. This achievement thus, confirmed that the product is on demand and profitable.

Alston Kuhan Benedict

He earned a Certificate in Electrical Technology from Bukit Beruang Community College, Melaka. His business, Pro Electric Dynamic Services, focuses on electrical engineering and maintenance. He is one of the finalists for Ministry of Education Entrepreneurial Awards 2018 for Outstanding Student Enterprise Awards. He is among the entrepreneurs who emerged from "Community College Incubator Classroom (CCIC)", an incubator programme designed to train students to do business via real business simulation.

Dr. Siti Shakinna Chu Binti Mohd Rizal Chu

She graduated with a Bachelor's in Veterinary Medicine from Universiti Malaysia Kelantan (UMK) in the year 2014. Currently she has two animal clinics and a shop selling animal food located in Sabah.

Muhammad Shazwan bin Ruslin

He earned a Certificate in Food and Beverage from Selayang Community College and graduated with a Diploma in Hotel Management and Catering from Politeknik Sultan Idris Shah. He is the Business Development Manager for Sierah Heritage Holdings Sdn Bhd which manages the "Tuuu... Dia Pak Tam" restaurant chain. He is also the Director for Halia Bara Sdn Bhd which produces 3 in 1 drink with the "Tuuu... Dia Pak Tam" brand, as well as the Director for Kulit Kayu Manis Enterprise. Shazwan was the 1st Runner Up award for MoHE Entrepreneurial Awards 2018 for Outstanding Graduate Enterprise Awards.

Meor Muhamad Fazrul Adly Bin Meor Fuad

He graduated with a Diploma in Electrical and Electronic Engineering in 2017 from Tuanku Sultanah Bahiyah Polytechnic, Kulim. He is currently pursuing a Bachelor in Facilities Management Technology at Politeknik Sultan Salahuddin Abdul Aziz Shah, Shah Alam. He is the Managing Director and CEO of three companies namely Meor Legacy Enterprise, Meor Legacy Entertainment and Meor Legacy Essential. His company is related to Veterinary, Animal Training and Psychology, Entertainment, Event Management and Talent Management as well as Facilities, Property and Asset Management. He is an example of a student entrepreneur who has successfully run a business while studying.

Issues and Challenges

In light of the latest developments that are taking place within the nation, many issues and challenges have been identified as potential obstacles that can hinder the effort of producing entrepreneurial graduates and graduate entrepreneurs in the future. These facts are gathered from a series of engagement session with various stakeholders such as the students, lecturers, alumni, government agencies, private corporations and practising entrepreneurs. The issues and challenges are discussed next.

01. Learned, Values-Driven Talent

MEB (HE) envisioned producing learned, values-driven talent or graduates who are well-equipped and well-developed in ethics, moral values, entrepreneurial and soft skills to support the country's economic growth. To a certain extent, these attributes have been included in entrepreneurship education at HEIs, but more effort is needed to ensure graduates and graduate entrepreneurs are well-prepared ethically and morally to navigate challenges in the real world.

02. Entrepreneurship Curriculum

Entrepreneurship education is one of the key initiatives highlighted in Shift 1 of MEB (HE) in developing holistic, entrepreneurial and balanced graduates. The initiative emphasises on improving the design of entrepreneurship courses whereby more practical components of introductory entrepreneurship courses are to be included and an entrepreneurship minor in academic programmes is to be introduced. While much effort has been taken by HEIs to enhance the entrepreneurship curriculum, there are still rooms for improvement in inculcating experiential learning in the teaching and learning process. There are many elements at play, and HEIs must focus on each of them to ensure that they interact synergistically to produce the needed outcome.

03. Students

Students constitute the main beneficiaries of the entrepreneurship agenda at HEIs. The success of EAP-HEIs 2021-2025 will depend on the students' readiness to respond to the initiatives made by HEIs. Nonetheless, some students have expressed some reservations and scepticism in pursuing entrepreneurship as a career. One of the reasons given is lack of understanding and confidence to become an entrepreneur. In addition, many students also believe that the workload of their studies is already heavy which gives them less time to explore the world of entrepreneurship while on campus.

04. Lecturers

Lecturers have an important role to play in the pursuit of entrepreneurship agenda at HEIs. They are the direct enablers who are closely associated with students. However, some lecturers have expressed their reluctance in being part of the process as they feel that they are not trained in the field of entrepreneurship. Some also feel that their involvement in entrepreneurship is not getting proper recognition from the top management as it is only given a small weightage for career promotion. The existing pool of interested lecturers is very small and some will retire soon, hence, leaving a big vacuum to be filled.

05. Facilities

Adequate facilities are an important enabler in providing a conducive environment for entrepreneurship activities. To date however, not many HEIs have dedicated specially designated areas for student entrepreneurs to run their business on campus. Also, many universities do not have an incubator centre that can function as co-working spaces where students can interact and exchange business ideas as well as form companies and incubate their business on-campus.

06. Governance

One important issue faced by most HEIs is the lack of clear direction with regards to entrepreneurship agenda on campus. The current practice varies from one HEI to another and within one HEI, entrepreneurship falls under many different authorities. Such confusion complicates the reporting process as entrepreneurship is being pursued by many parties within the campus; yet, the said parties are isolated from one another. Thus, this has made it difficult for the management to collect comprehensive data which are useful and crucial for strategic planning purposes.

07. Fund

The issue of lack of fund affects the entrepreneurship agenda in two ways – (i) it becomes a major challenge for HEIs to organise many impactful activities, and (ii) students with good business potential face difficulties to kickstart their businesses owing to limited or small capital they have. As such, for the entrepreneurship agenda to flourish, funds need to be allocated to HEIs to enable them to support the capital needs of the students.

08. Collaboration

The current networking practice with the industry partners is very much dependent on the HEIs' initiative. As a result, there is a varying degree of activities across the HEIs, and it ranges from very active to very low. A concerted effort needs to be initiated to ensure that every HEI pursues meaningful collaboration with industry partners. The partners can provide many useful insights and much support to pursuing the entrepreneurship agenda at the respective HEIs.

09. Fourth Industrial Revolution (4IR), Disruptive Technology and Data Analytics

In the age of the Fourth Industrial Revolution (4IR), disruptive technologies, data analytics, automation, robotic, internet of things and social media have brought many changes that affect the livelihood of human beings. Such developments require changes and adaptation as to how entrepreneurship should be taught at tertiary institutions. Against that backdrop, HEIs need to incorporate the latest approaches in educating future entrepreneurs to ensure they are relevant.

10. Volatility, Uncertainty, Complexity and Ambiguity (VUCA)

The dynamic nature of today's world has brought many new challenges to the society. Social and economic issues such as the widening household income gap between the T20 and B40 groups, high inflation, new normal and dynamic business landscape have opened new opportunities and enhanced the importance of entrepreneurship.

11. The 17 Sustainable Development Goals (SDG-17)

The SDG-17 is an all-encompassing plan and has now become the primary reference for policy-makers worldwide. The 17 goals are integrated, and the action in one area will affect outcomes in other areas. The development must balance social, economic and environmental sustainability. On that note, EAP-HEIs 2021-2025 must consider incorporating the SDG-17 goals towards educating its graduates and graduate entrepreneurs, transforming Malaysia to become a better place in the future.

CURRENT REALITY

Towards the end of 2020, HEIs in Malaysia face two critical challenges which are directly affecting their entrepreneurship agenda. The first challenge is concerning the high number of unemployed graduates in the country. The second challenge is the emergence of COVID-19 pandemic that is badly affecting countries around the world.

Based on the statistics released by the Department of Statistics Malaysia (DOSM), the unemployment rate in the country is 3.9 percent in March 2020; an increase of 17.9 percent from the previous year. This increment brings the number of total unemployment to 610,500. Of this figure, the unemployed graduates make up 29.3 percent, which represents 178,877 people. This number is very alarming as each year, both public and private HEIs in Malaysia produce around 290,000 graduates. Given the slowdown in the economy, primarily due to the COVID-19 pandemic, the situation is expected to deteriorate further should it continue to persist. To arrest the problems, the Ministry has introduced KPT Career Advancement Programme (KPT-CAP), which assists university graduates to adjust to life after college. One of the initiatives is to provide training to graduates who aspire to venture into entrepreneurship. Through this programme, the graduates are expected to create jobs, thus addressing the problems associated with graduate unemployment.

The COVID-19 pandemic brought the whole world to a standstill as many countries have resorted to enforce lockdown in the effort to curb the spread of the virus. The pandemic has changed people's lives as the new normal emerges, which disrupts almost everyone's livelihood. The tertiary institutions are no exception and feel the pinch as teaching and learning in traditional classrooms need to be replaced with online and distance learning platforms. Given the latest development, Global Entrepreneurship Monitor (GEM) has advocated the need for policymakers to create cohesive, holistic, and conducive frameworks for entrepreneurs to flourish in a post-COVID-19 world.

The two issues discussed above provide additional strong support and justification for a new entrepreneurship action plan to be designed. Hence, the EAP-HEIs 2021-2025 will accommodate the issues and challenges faced by HEIs to ensure all efforts are geared towards promoting entrepreneurship to students.

CONCLUSION

This chapter provides an overview of the entrepreneurship education landscape at the tertiary level in Malaysia. It proves the government's strong commitment in producing entrepreneurial graduates and graduate entrepreneurs. It presents past performance and achievements as well as the issues and challenges faced by HEIs in pursuing the entrepreneurship agenda. Against that backdrop, a new set of action plan is deemed necessary. The plan will be explained in the next chapter.

N. Gregory Mankiw
MACROECONOMICS
MACROECONOMICS

CHAPTER

B

VISION AND ASPIRATIONS

INTRODUCTION

The Entrepreneurship Action Plan–Higher Education Institutions (2021-2025) hereafter known as EAP-HEIs 2021-2025 sets out to enhance the implementation of entrepreneurship agenda at Higher Education Institutions (HEIs) in Malaysia. It builds on the strong foundations of previous efforts to enhance entrepreneurship education and aspires to develop holistic, entrepreneurial and balanced graduates. Its core references are National Entrepreneurship Policy 2030 (NEP 2030), Malaysia Education Blueprint 2015-2025 (Higher Education) and Entrepreneurship Action Plan 2016-2020.

NATIONAL ENTREPRENEURSHIP ASPIRATION

On July 11, 2019, the Ministry of Entrepreneurship Development and Cooperatives (MEDAC) launched National Entrepreneurship Policy 2030 (NEP 2030) which is a long-term national strategy to transform Malaysia into an entrepreneurial nation by the year 2030. NEP 2030 is designed to develop an entrepreneurial ecosystem in Malaysia that will enhance the country's competitiveness in the global economy and will create an entrepreneurial culture in the Malaysian society amidst the increasing competitions and challenges of Industry 4.0. NEP 2030 outlines five objectives, of which, Objectives 1, 3 and 5 are directly related to entrepreneurship initiatives in higher education.

MINISTRY OF ENTREPRENEUR DEVELOPMENT AND COOPERATIVES

NEP 2030

National Entrepreneurship Policy

Malaysia: An Outstanding Entrepreneurial Nation 2030

01 To create a **holistic and conducive entrepreneurship ecosystem** for sustainable, balanced and inclusive socio-economic development in Malaysia

02 To develop a Malaysian community with **entrepreneurial mindset and culture**

03 To produce quality, viable, resilient and competitive entrepreneurs with **global mindset**

04 To scale up **local enterprises and SMEs**

05 To make entrepreneurship as a preferred **career of choice**

MALAYSIA ENTREPRENEURSHIP ASPIRATIONS AND TARGETS

2018	2025	2030

1. Malaysia's Position in Global Indices

	2018	2025	2030
GEDI- Global Entrepreneurship Index	58/137	Top 35	Top 25
WEF - Global Competitiveness Index	25/140	Top 20	Top 15
World Bank Doing Business	15/190	Top 10	Top 10
Global Innovation Index (GII)	35/126	Top 30	Top 20

2. SMEs Contribution to GDP

38.3% → **45%** → **50%**

3. SME-generated Job Opportunities

66.2% → **72%** → **80%**

4. SME Contribution to Export Value

17.5% → **25%** → **30%**

5. Contributions by Cooperative Yield

RM40.3 billion → **RM60** billion → **RM100** billion

Source: National Entrepreneurship Policy 2030 (NEP 2030), page 39

THE 10 Shifts Malaysia Education Blueprint 2015-2025 (Higher Education)

Source: MEB 2015-2025 (Higher Education) , page 24

1 Holistic, Entrepreneurial and Balanced Graduates

This Shift outlines the strategies and related initiatives that are required to develop graduates with relevant and appropriate disciplinary knowledge and skills (ilmu), ethics and morality (akhlak), along with the right behaviour, mindset, cultural and civilisational literacy (beradab). They have to be future-proof graduates, ready to navigate the challenges of today and tomorrow successfully. This requirement will need graduates to have the right knowledge and technical expertise and the capacity to make ethical decisions, and the resilience to deal with rapid change.

Shift 1 outlines the Implementation Roadmap for its two strategies and four initiatives in three waves, as depicted in Table B1. One initiative that is of particular relevance to the entrepreneurship agenda is creating the Job Creator Framework. EAP-HEIs 2016-2020 had implemented the planned action for Wave 2, which was to launch the Job Creator Framework across public and private HEIs to support students in creating and growing business. The elements of the Job Creator Framework are detailed out in Table B2.

Table B-1:
Holistic, Entrepreneurial and Balanced Graduates Implementation Roadmap

The Implementation Roadmap for its two strategies and four initiatives in three waves

wave **1** 2015

Strategy A
Developing holistic and integrated curriculum

- Introduce High Impact Educational Practices (HIEPs) and lessons on experiential learning and entrepreneurial immersion to public and private HEIs.
- Initiate development of Integrated Assessment methodology led by pilot HEIs.

Strategy B
Enhancing the learning support system

- Initiate development of Job-Creator framework in consultation with HEIs and entrepreneurs.
- Review existing policies and guidelines to encourage and facilitate excellence in service and entrepreneurial learning.
- Review and develop guidelines for supporting student activities (e.g Greenlane policy for student-owned business).

2 2016-2020

- Introduce undergraduate 3+1 or 2+2 programmes with off-campus or industry-based learning.
- Launch and implement integrated assessment systems by HEIs.
- Support HEIs in intensifying industry and community engagement effort.
- Facilitate HEIs in enhancing *'Mata Pelajaran Umum (MPU)'* framework by including generic cross-curricular and liberal arts courses.
- Encourage enhancement in entrepreneurship programmes especially the practical component.

3 2021-2025

- Refine and improve integrated assessment framework across all public and private HEIs.
- Review and revise policies and guidelines to encourage and facilitate incorporation of 21st century skills into HEIs curriculum.
- Support HEI in developing integrated curricular.

- Launch job creator framework across public and private HEIs to support students in creating and growing business.
- Develop unity index or indicators and rollouts across HEIs.
- Introduce rewards and incentives for excellence in service and entrepreneurial learning.
- Refine and improve job creator framework for HEIs.
- Review effectiveness of Unity Index and improve the ongoing tracking.
- Enhance recognition and best practice sharing of instructional excellence by individuals and institutions.

The Job Creator Framework outlines the pathway to expose students to entrepreneurship while studying and inculcate entrepreneurial mindset and skills for them to become job creators rather than merely job seekers.

Table B2:
The Job Creator Framework EAP-HEIs (2016-2020)

YEAR 1

- Theme:
  Acculturation of Entrepreneurship

- Objective:
  Inculcation of attributes during the early part of study

Attributes:

1. **Self-efficacy**
   The belief about one's own capabilities to succeed in achieving an outcome or reaching a goal.
2. **Competitive**
   The desire to win or be more successful than other people.
3. **Networking**
   The ability to meet and talk to a lot of people, especially to get helpful information.
4. **Calculative Risk Taking**
   The ability to undertake the actual or chance of failure which degree of probability has been estimated before or upon entering some undertaking.
5. **Innovative & Creative**
   The ability to use creative intelligence to improve, create change and disrupt the status quo.

YEAR 2-3

- Theme:
  Programmes for Strengthening Entrepreneurship

- Objective:
  Wide opportunities for entrepreneurship learning and skills

Entrepreneurial Skills:

- Determination and perseverance
- Dealing with the lack of success
- Critical thinking
- Identifying opportunities
- Learning from mistakes
- Belief in oneself
- Distinguishing between the important and the unimportant
- Awareness of surroundings
- Proper conduct with money
- Negotiation
- Taking responsibility
- Attentiveness
- Tolerance
- Desire to learn and grow
- Ability to work in a team
- Desire to make changes
- Communications skills
- Positive thinking
- Focusing on the target
- Courage to dare
- Dealing with new things
- Decides and does

YEAR 4

- Theme:
  Entrepreneurship support programmes
- Objective:
  A support system for student businesses on campus

21st century entrepreneurship thinking to enhance the job creator Framework

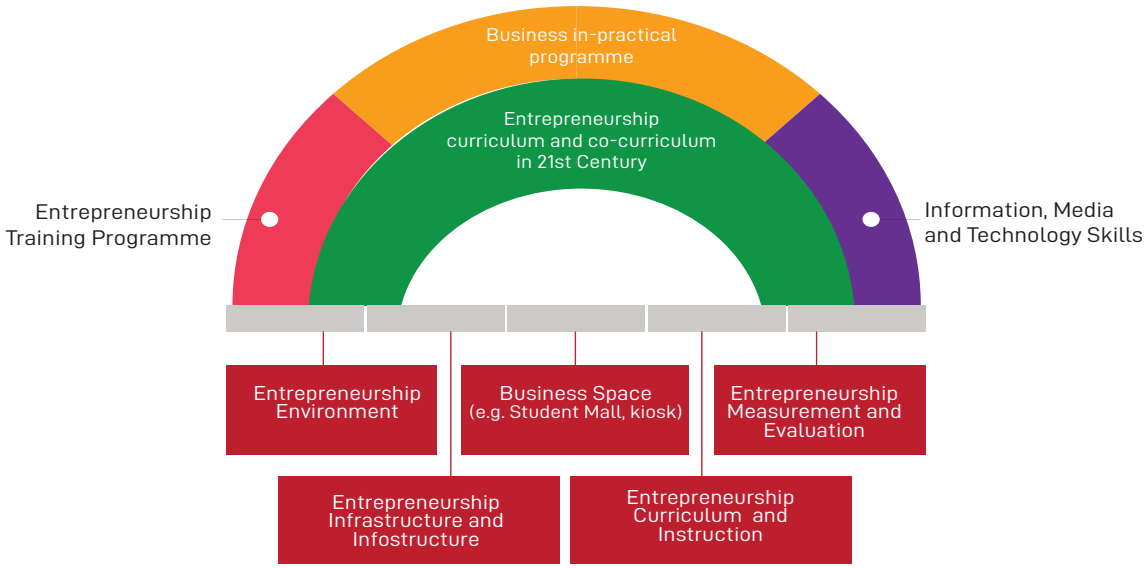


Figure B-1: Framework for 21st Century Entrepreneurship

Figure B-1 shows the critical elements needed to implement 21st century entrepreneurship learning. The three (3) elements described in the upper portion of the framework represent the critical parts, essential for entrepreneurship education to ensure that students can master the required knowledge, skills and expertise to succeed in work and life of the 21st century. Besides, the entrepreneurship curriculum and co-curriculum must consist of the core entrepreneurship knowledge and higher-level content that acknowledge and embrace 21st-century themes such as Global Awareness, Financial, Economic, Business Literacy, Civic, Health and Environmental Literacy.

The elements described in the lower portion of the framework are the critical system necessary to ensure students' mastery of the 21st-century skills embedded in entrepreneurship education. The system includes 21st-century entrepreneurship education curriculum and instruction, measurement and evaluation, learning environments, infra and info structure and business space - all of which must be aligned to produce a supportive ecosystem that produces 21st-century outcomes for today's graduates.

New Shifts to Enhance the **Job Creator Framework**

Wave 3 (2021-2025) of Shift 1 Implementation Roadmap recommended a refinement and improvement of the Job Creator Framework for HEIs. The strategic stakeholder engagements through town halls and focus group discussions revealed the issues and challenges facing entrepreneurship education despite its progress in the last decade. Against the landscape of the VUCA world and greater expectations from stakeholders, EAP-HEIs 2021-2025 has outlined new shifts that will enhance the Job Creator Framework.

As shown in Figure B-2, the new shifts focus on changing student and graduate entrepreneurs from being necessity-based to being opportunity-based through the emphasis on technology and innovation. The new shifts also focus on the importance of experiential learning in entrepreneurship curriculum to enhance students' knowledge, morals, values, entrepreneurial mindset, and soft skills.

Apart from that, the shifts also highlight the importance of skilful and knowledgeable entrepreneurship educators and the need for a special track under Differentiated Career Pathways framework to recognise their achievements accordingly. The success of entrepreneurship agenda also depends on the creation of all-encompassing entrepreneurship policies at all HEIs that are in tandem with the institutions' income generation policy. Finally, HEIs need to move from cooperative interactions to synergistic and impactful collaborations with the other players in the Quadruple Helix.

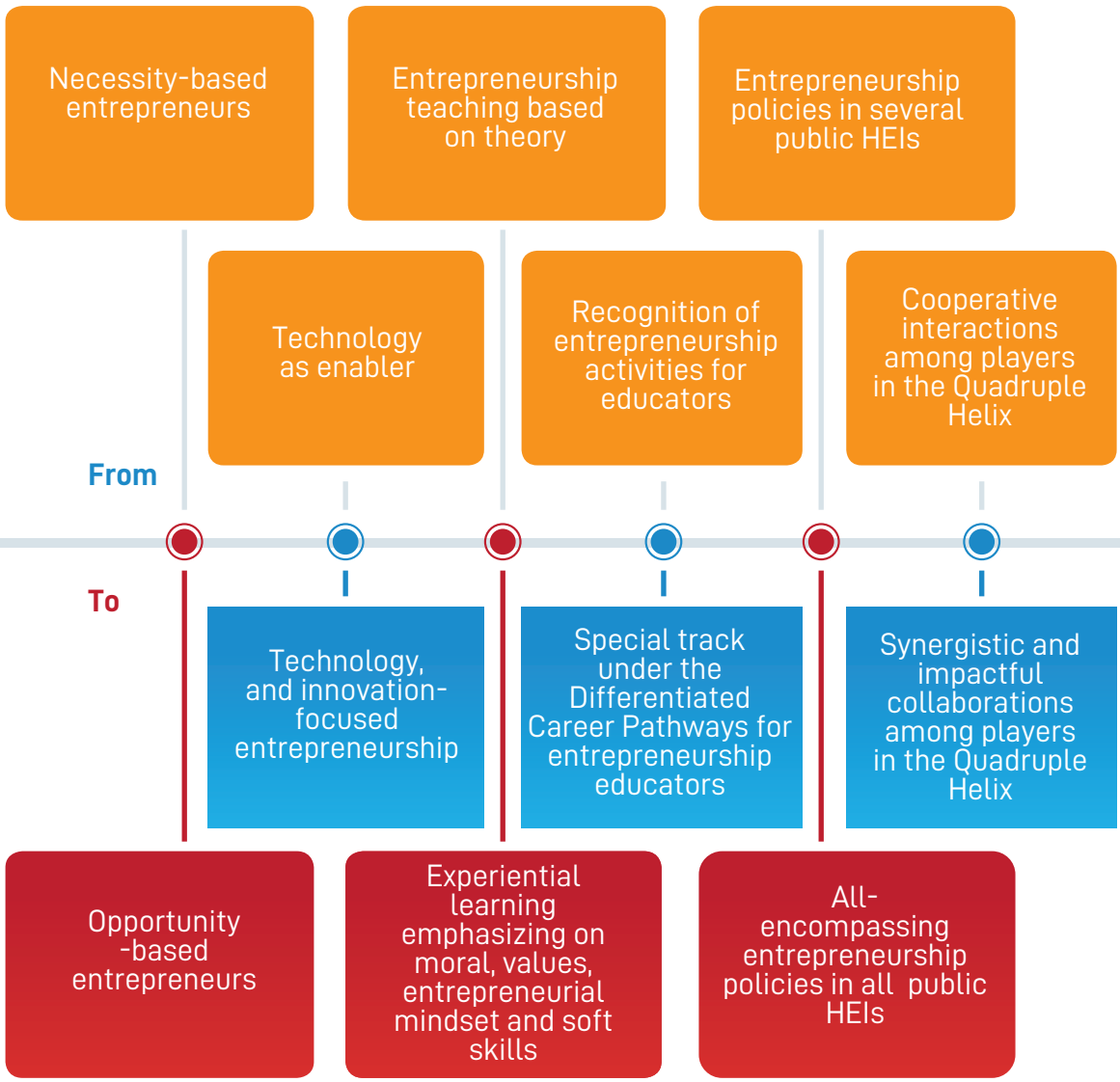


Figure B-2: New Shifts to Enhance the Job Creator Framework

ASPIRATIONS

The aspirations of EAP-HEIs 2021-2025 are based on NEP 2030, MEB (HE) 2015-2025 and the enhanced Job Creator Framework. Under EAP-HEIs 2021-2025, an implementation framework is developed to enhance the execution of entrepreneurship education among HEI students.

The EAP-HEIs 2021-2025 overarching objectives are as follows:

- To ensure that HEIs produce quality graduates relevant to the community and play significant roles in improving the standards and quality of life.
- To make entrepreneurship a long-term viable career choice by students.
- To increase the number and quality of students' businesses that are ready to compete at national and international levels.
- To further enhance the implementation of the job creator framework.
- To established sound entrepreneurship policies and good governance that are conducive to entrepreneurship education.

OVERVIEW OF THE EAP-HEIs 2021-2025 IMPLEMENTATION FRAMEWORK

EAP-HEIs 2021-2025 outlines the critical success factors and the implementation framework for entrepreneurship education initiatives at the Higher Education Institutions (HEIs) in Malaysia. The Framework is anchored in desired outcomes of entrepreneurship education in HEIs and ultimately, in the quality of graduates of Malaysian education system.

GOAL

The goal of entrepreneurship education in Malaysian HEIs is to produce entrepreneurial graduates and sustainable, competitive graduate entrepreneurs. Entrepreneurial graduates are graduates who have an entrepreneurial mindset and hence all the attributes of entrepreneurs. Simultaneously, HEIs also need to produce student entrepreneurs and graduate entrepreneurs. The goal is for these entrepreneurs to be competitive and to sustain their business well into the future, create jobs and eventually contribute to the country's economy. As shown in the EAP HEIs 2021-2025 implementation framework, the goal is driven by the three (3) thrusts namely, Thrust 1 Synergistic Entrepreneurial Ecosystem, Thrust 2 Impactful Collaborations, and Thrust 3 Innovation and Technology in Entrepreneurship. Each Thrust is delivered with sets of strategies and initiatives and are supported by a strong foundation of governance, together with integrity, values and calculated risks.

Thrust 1
SYNERGISTIC ENTREPRENEURIAL ECOSYSTEM

A synergistic ecosystem requires interconnectedness and collaboration between entrepreneurial elements such as academia, industry, government and community. It is supported by three (3) strategies which synergise the role of teaching and learning, the production of students who are job-creators and the enhancement of educators' expertise in entrepreneurship.

Under the Thrust, **sixteen (16) initiatives** were initiated to drive the agenda, and **three (3) key performance indicators (KPIs)** were developed to measure the success of the implementation. The KPIs include the percentage of student entrepreneurs at HEIs conducting business on campus during their study, the percentage of graduate entrepreneurs at HEIs who venture into entrepreneurship after graduation, and the number of teaching staff with entrepreneurship expertise.

1

Strategy

STRENGTHENING ENTREPRENEURSHIP TEACHING, LEARNING AND RESEARCH SUPPORT SYSTEM

Initiatives

- Student entrepreneurial activities as credited co-curriculum programme.
- Social entrepreneurship (SE) in entrepreneurship curriculum and co-curriculum.
- Industry practitioners in entrepreneurship teaching and learning.
- Entrepreneurial skills across disciplines.
- Research findings in entrepreneurship teaching materials.

2

Strategy

DEVELOPING STUDENTS WHO CAN CREATE JOBS THROUGH ENTREPRENEURSHIP

Initiatives

- Entrepreneurship policies at HEIs.
- Student entrepreneurship incubators.
- Green lane policy for student-owned businesses and student cooperatives.
- Directory of gig economy and independent workers among students.
- Student entrepreneurship industrial training.
- Network of student entrepreneurs on campus.

3

Strategy

INCREASING THE NUMBER OF EDUCATORS WITH ENTREPRENEURSHIP EXPERTISE

Initiatives

- Involvement in entrepreneurship activities as one of the promotion criteria.
- Professional or entrepreneurship track as one of the tracks in the academic career pathway.
- Entrepreneurship sabbatical programmes.
- Direct involvement of academic staff in entrepreneurship activities.
- Certified educators in the entrepreneurship field.

Thrust 2
IMPACTFUL COLLABORATIONS

Impactful collaborations relate to synergistic collaboration between the four elements in the Quadruple Helix consisting of academia, government, industry and community within the entrepreneurship ecosystem. It is essential as impactful collaborations will support the quality of entrepreneurship education, graduate employability and financial sustainability of the university. Under the Thrust, **two (2) strategies** were identified: increasing the diversity of cooperation through entrepreneurship network and increasing student entrepreneur business funding (seed funding). These strategies were supported by **six (6) initiatives** and **two (2) key performance indicators (KPIs)**. The KPIs are the number of collaborations with agencies, industries and NGOs, and associations with HEIs (local or international), and the total number of companies, enterprises or business projects funded through angel investors, venture capitalists, crowd funding entities, government agency grants, and pitching competition prizes related to entrepreneurship.

4 Strategy
FOSTERING VARIOUS COLLABORATIONS VIA ENTREPRENEURSHIP NETWORK

Initiatives

- Entrepreneurship Advisory Committee.
- Agency and industry network.
- Entrepreneur-in-residence.

5 Strategy
INTENSIFYING SEED FUNDING FOR STUDENT BUSINESSES

Initiatives

- Seed funding for student businesses.
- Online platform for fund contributions.
- Matching activities between investors and student businesses.

Thrust 3
INNOVATION AND TECHNOLOGY IN ENTREPRENEURSHIP

Innovation and Technology in Entrepreneurship enhance students' motivation to venture into entrepreneurship through innovation and technology. The students are nurtured to be opportunity-based entrepreneurs who seize any business opportunity rather than being entrepreneurs for the sake of mere survival (necessity-based). The transformation of necessity-based into opportunity-based entrepreneurship will help push the country's economy into a high-income economy and enhance theentrepreneurs' capability and capacity to become global players. Under the Thrust, **two (2) strategies** and **six (6) initiatives** were initiated to drive the agenda, and **two (2) key performance indicators (KPIs)** were developed to measure the success of the implementation. The two KPIs are the number of students engaged in innovation and technology-based programmes in all HEIs and the number of student start-ups based on innovation and technology.

6

Strategy

ENCOURAGING STUDENTS TO LEVERAGE INNOVATION AND TECHNOLOGY IN ENTREPRENEURSHIP

Initiatives

- Innovation-driven entrepreneurship programmes.
- Commercialisation of student's projects or products.
- Innovation-based entrepreneurship accelerator programme.

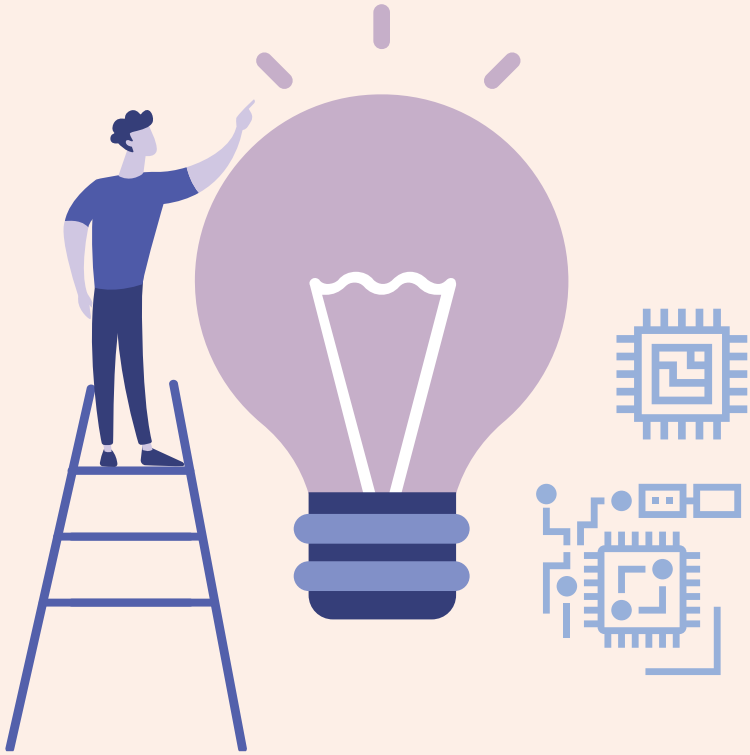
7

Strategy

ENCOURAGING THE ESTABLISHMENT OF INNOVATION, TECHNOLOGY AND DIGITALLY DRIVEN START-UP ENTERPRISES

Initiatives

- Start-up company that utilises innovation and technology.
- Collaboration with icons, celebrity entrepreneurs (celebpreneurs) and agencies related to innovation and technology.
- Graduate entrepreneur icons in innovation and technology.



Governance

Governance refers to the leadership, structure and policies to ensure that good decision-making process takes place in the organisation. Good governance at the Ministry and HEIs is a strong critical success factor in developing and executing viable entrepreneurial action plans at HEIs. The Ministry can leverage on National Entrepreneurship Council for Higher Education Institutions (NECHEI) set up in 2011 to further promote the entrepreneurship agenda. The council which meeting is chaired by the Minister of Higher Education can be used as a platform to solve inter-ministerial and inter-agency issues related to HEI entrepreneurship initiatives.

In addition, the Ministry could establish a comprehensive, integrated and uniform reporting system to support HEIs. The system serves as a working platform for problem-solving before the issues are brought up to NECHEI.

At the institutional level, HEIs need to establish strong policies and a clear line of responsibilities to allow for synergistic interactions among all parties involved. HEIs must have clear income generation policies that differentiate between income generation meant to support student entrepreneurs and income generation by HEIs' private wing. There must also be a clear career pathway policy to support academics involved in entrepreneurship education.

Integrity, Values and Calculated Risks

Integrity, Values and Calculated Risks serve as an important foundation for EAP-HEIs 2021-2025 Implementation Framework. The three thrusts of the framework, together with the strategies and initiatives are to be executed with integrity, driven by values and subjected to calculated risks. These critical elements are very much in line with the overall outcome of MEB (HE), which is to produce learned, values-driven talent.

Each of the element is as defined below:

Attributes	Definition
1 **Integrity**	The level of honesty and state of being upright in keeping or defending a person's stand, principles and accountability in carrying out a task.
2 **Values**	A system of moral rules or principles of behaviour, which are practiced in a workplace or a working environment.
3 **Calculated Risks**	The ability to undertake the actual or chance of failure which degree of probability has been estimated before or upon entering some undertaking.

The implementation framework encompasses three (3) main thrusts which act as the driver to EAP-HEIs 2021-2025, executed through seven (7) pillars of strategies and 28 initiatives.

Figure 3: EAP-HEIs 2021-2025 Implementation Framework

CONCLUSION

To sum up, there is a wise quote which says it is not the fittest, but rather the one most adaptable to change, who survives in life. It is based on this survival spirit that EAP-HEIs 2021-2025 nails its key strategies and initiatives, in tandem with the MEB (HE) and NEP 2030. These strategies and initiatives will contribute significantly in realising the national aspiration of Malaysia as an entrepreneurial nation by 2030. Entrepreneurship is what it takes to sustain the country's economic growth amidst the global challenges of IR4.0. It is mandatory for the community to be nurtured and groomed within and entrepreneurial ecosystem. Henceforth, all HEIs play a key-role and are directly responsible to ensure that Malaysia continues to prosper and sustain economically via strategic and effective implementation of EAP-HEIs 2021-2025.

“One Of The Only Ways To Get Out Of A Tight Box Is To Invent Your Way Out.”

– Jeff Bezos -

Thrust

1

Synergistic Entrepreneurial Ecosystem

INTRODUCTION

A synergistic entrepreneurial ecosystem refers to the interconnectedness and collaboration of entrepreneurial elements such as academia, industry, government, and community that connect, mediate and govern the performance of entrepreneurial environment. Within the HEIs, the entrepreneurship ecosystem framework highlights the interconnectedness and collaboration of staff, students and university engagement with the external ecosystem backed by adequate facilities and supportive policies as depicted in Figure 1-1. The role of internal ecosystem significantly enables the success of entrepreneurship development due to its interactions with the external ecosystems.

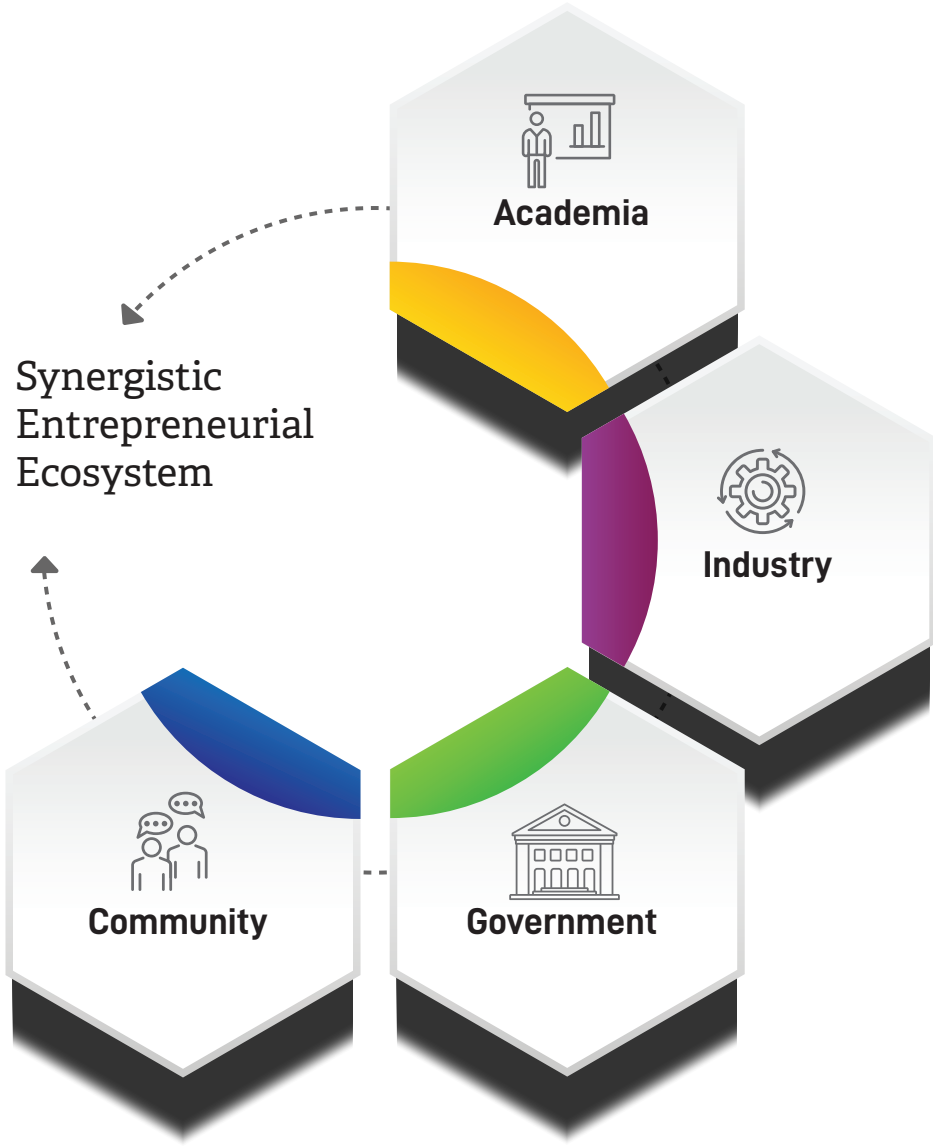


Figure 1-1: Inclusive Entrepreneurship Ecosystem

WHY IT MATTERS

All actors or elements within the university ecosystem must synergistically play their role in producing holistic, entrepreneurial and balanced graduates. This initiative entails developing an entrepreneurial mindset amongst all graduates while also creating entrepreneurs among students and graduates. These achievements will directly and indirectly contribute to the increase in graduate employability among HEI graduates. Currently, public HEIs are facing challenges to maintain the targeted percentage of student entrepreneurs (still studying) and graduate entrepreneurs. For example, in 2019, public HEIs recorded 10.2 percent of student entrepreneurs and 4.6 percent of graduate entrepreneurs against a target of 10 percent and 4 percent, respectively.[1]

Although the targets for 2019 were achieved, there are still several challenges facing entrepreneurship education at HEIs. The teaching approach adopted in entrepreneurship courses is one factor that hinders HEIs from producing more student and graduate entrepreneurs. Most teaching approaches focus on theories without significantly relating the lessons to the real context of entrepreneurship or business.

The lack of experiential learning impedes the students from acquiring the required entrepreneurial skills effectively. The execution of experiential learning needs to be supported by adequate and transparent policies and dedicated academic and administrative staff at the HEIs. Only a few HEIs have a clear entrepreneurship policy that legitimises the students' entrepreneurial activities. Furthermore, academic staff may not feel encouraged to plan and implement entrepreneurial activities due to the lack of recognition in the career pathway.

To face the challenges mentioned earlier, Thrust 1 is divided into three main strategies, namely:

1. Strengthening entrepreneurship teaching, learning and research support system.
2. Producing students who can create jobs.
3. Increasing the number of educators who have expertise in entrepreneurship.

[1] Laporan Kajian Pengesanan Graduan, Kementerian Pengajian Tinggi (2019).

OBJECTIVE

The objective of Thrust 1 is to create a synergistic entrepreneurial ecosystem among its players and elements. The ecosystem within the HEIs must be healthy and must allow for the synergistic interactions among the players in the quadruple helix which consists of academia, government, industry and society. A synergistic ecosystem means the players can achieve more as a group than they can as individuals. Hence, the synergy created will drive the entrepreneurship initiatives and will enable the HEIs to fulfil their entrepreneurship goals.

STRATEGY

1

Strengthening Entrepreneurship Teaching, Learning and Research Support System

Entrepreneurship has been generally viewed as a method of promoting economic growth, creativity and innovation.

It is emphasised that HEIs play an important role in supporting sustainable entrepreneurship by educating future sustainable entrepreneurs. Therefore, the importance of the support system framework that assists entrepreneurship teaching, learning and research must be translated inclusively into academic programmes across various disciplines.

The Entrepreneurship Integrated Education (EIE) for Higher Education Institutions (HEIs) serves as guidelines for the institutions to infuse a well-rounded entrepreneurship knowledge into the tertiary entrepreneurship education curriculum.

INITIATIVES

01 Student entrepreneurial activities as credited co-curriculum programme

Co-curriculum is a structured learning activity that complements the formal curriculum. Students who run businesses while studying are learning entrepreneurship and harnessing entrepreneurial mindset through experience. This endeavour will add value to their cognitive, affective and psychomotor domains. Hence, a structured assessment with possible credit towards co-curricular recognition will encourage students to participate in business activities to acquire entrepreneurial skills in a real business context.

02 Social entrepreneurship (SE) in entrepreneurship curriculum and co-curriculum

Social entrepreneurship (SE) activity innovatively creates realistic social value. Embedding SE, through creative and innovative teaching contents and methods, would increase sympathy and empathy among students. As a result, they would help vulnerable groups to elevate their socio-economic value through social entrepreneurship programs such as upskilling and reskilling activities. These SE initiatives initiated by HEI students would make them see the potential of SE in creating and nurturing social values.

03 Industry practitioners in entrepreneurship teaching and learning

The involvement of industry practitioners makes entrepreneurship teaching more practical, realistic and effective. Greater collaboration in a synergistic manner with the practitioners will translate theories into practices. The positive effect of partnership between HEIs and practitioners will enhance students' motivation and interest to venture into entrepreneurship activities.

04 Entrepreneurial skills across disciplines

Teaching entrepreneurial skills to students from different fields will enable them to develop entrepreneurial mindset, acquire entrepreneurial skills, and enhance their interest in entrepreneurship activities. The combination of entrepreneurship and science will help the students sell their ideas and positively impact society by being business entrepreneurs or social entrepreneurs.

05 Research findings in entrepreneurship teaching materials

The application of research findings in developing entrepreneurship curriculum, teaching materials, teaching methodologies and assessment approaches will help HEIs achieve the intended learning outcomes. This effort will develop more students with entrepreneurial mindset and eventually create student entrepreneurs.

STRATEGY

2

Developing Students Who Can Create Jobs through Entrepreneurship

Malaysia is a country characterized by many business opportunities. This strategy aims to shift the students' mindset from becoming job seekers to being job creators (job generators).

This change of focus can be achieved by transforming them from necessity-based entrepreneurs into opportunity-based entrepreneurs. This transformation can also help to mitigate the unemployment issue among the graduates. Besides, the current trend of innovation and technology advancement could enhance the entrepreneurship endeavour and help reduce the community's poverty rate and contribute to sustainable economic and social development.

INITIATIVES

01 Entrepreneurship policies at HEIs

Policies play an important role in supporting inclusive entrepreneurship ecosystems with clear strategic direction, goals and objectives at HEIs. These policies are sources of authority in enhancing entrepreneurial activities and rightfully supporting business creation and retention. Currently, not all public HEIs have comprehensively developed the said policy.

02 Student entrepreneurship incubators

In producing student entrepreneurs or graduate entrepreneurs, incubators are vitally important to enhance the process of setting up new companies. The incubators provide graduate entrepreneurs with expertise, networks, and tools which significantly contribute to their successful business ventures. Additionally, incubators also support job creation by providing a working space for coaching and mentoring, financial assistance, and business advisory.

03 Green lane policy for student-owned businesses and student cooperatives

In enhancing the ecosystem for students' entrepreneurship development, a green lane policy for student-owned businesses and student cooperatives needs to be strengthened at the public HEIs to encourage students' entrepreneurial activities and income generation. The 'green lane' policy allows student-owned businesses and student cooperatives to have the opportunity to be among the service providers for their respective HEIs within a specific boundary.

04 Directory of gig economy and independent workers among students

By creating a directory of gig economy, HEIs can better prepare their students for the workforce they will enter upon graduation. They can work independently and be a part of the players in Gig Economy. This platform may help the students get ideas with regards to job opportunities as it connects them to job providers and individuals in the same area of interest and expertise. Thus, the connection may give the students opportunities to offer their services to others.

05 Student entrepreneurship industrial training

The student entrepreneurship industrial training will allow students to apply their entrepreneurship knowledge and skills and obtain real business experience. This training is different from the regular student internship programme where students will receive first-hand training in running a business through equal partnerships between HEIs and employers.

06 Network of student entrepreneurs on campus

One of the keys to succeed in doing a business is networking. This initiative could gather the student entrepreneurs in the same platform, foster an insightful entrepreneurial culture, nurture them with valuable skill sets, and necessary knowledge, and create a community filled with creativity and profound innovations. If nurtured carefully, this networking will continue to benefit the students well into the future once they graduate.

STRATEGY

3

Increasing the Number of Educators with Entrepreneurship Expertise

An educator's competence is a significant factor in the advancement of entrepreneurship education initiatives and will enhance students' commitment to entrepreneurial related learning.

Entrepreneurship educator develops the students' entrepreneurial qualities and skills that enable them to survive in the business world. Through experiential learning, entrepreneurship education will give students the vision and ability to access and transform opportunities of different kinds. Hence, involvement of more competent entrepreneurship educators is demanded to ensure the continuous success of entrepreneurship education.

INITIATIVES

01 Involvement in entrepreneurship activities as one of the promotion criteria.

The importance of entrepreneurship educators in entrepreneurship education should be acknowledged. This recognition can be done through an annual evaluation of the educators by considering a few aspects of their achievement among which are the number of entrepreneurship activities done and the number of students coached by them.

02 Professional or entrepreneurship track as one of the tracks in the career pathway

The University Transformation Programme (UniTP) Orange Book: Strengthening Academic Career Pathways and Leadership Development recommends that HEIs develop different career pathways to celebrate different kinds of excellence and contributions expected of an academic. There are four recommended pathways for that matter which are teaching, research, institutional leadership and professional or entrepreneurship track. Public HEIs should develop criteria under the professional or entrepreneurship track to recognise academic and professional achievements by entrepreneurship educators.

03 Entrepreneurship sabbatical programmes

Sabbatical programmes allow academics to have a chance to step back from their role at work and focus on professional development. HEIs are encouraged to have adequate policies to support the widened scope of entrepreneurial educators' sabbatical programme, such as attachment with industry, small and medium enterprises, and community. To support such an initiative, each faculty or academic centre must have a proper plan for whom should be granted the entrepreneurship sabbatical leave, as well as when and how long the leave should be.

04 Direct involvement of academic staff in entrepreneurship activities

The role of entrepreneurship educators in experiential teaching and learning requires them to have first-hand experience as business owners and run the business. HEIs should have appropriate plans, policies and reward systems to allow entrepreneurship educators to run a business and engage in entrepreneurship activities.

05 Certified educators in the entrepreneurship field

Entrepreneurship educators need to have the necessary qualifications and certification in entrepreneurship to enhance entrepreneurship education holistically. HEIs can plan to have educators with various entrepreneurship qualification background. They can be those with a Ph.D. in entrepreneurship or those who obtain recognition or accreditation from national or international accredited institutions or those who undergo attachment and cross placement programme in industry or SMEs for a specified period. These initiatives can help increase entrepreneurship educators' competencies in designing and executing entrepreneurship education at public HEIs.

KEY MEASUREMENTS

The success of the strategies and initiatives will be monitored through their execution and achievements of the Key Performance Indicators (KPIs). It is essential for each strategy to have key milestones to assist HEIs in gauging their performance. In some HEIs, the strategies and initiatives are already well established, while in some others, they may need additional resources and enhancements. Considering the different maturity stages and uniqueness of each HEI, the target date for the Milestones will be different from one HEI to another.

MONITORING OF INITIATIVES

	Milestone 1	Milestone 2
Strategy 1: **Strengthening entrepreneurship teaching, learning and research support system**	■ Discussion with the stakeholders and selecting the appropriate courses	■ Embedding entrepreneurship teaching across disciplines.
Strategy 2: **Developing students who can create jobs through entrepreneurship**	■ Assessment of the stage of Entrepreneurship Policy development at each HEI, followed by the development or enhancement of the policy.	■ Assessment of the stage of implementation of each policy and its effectiveness, followed by the appropriate intervention.
Strategy 3: **Increasing the number of educators with entrepreneurship expertise**	■ Preparation of Entrepreneurship Talent Development Plan to increase the number of educators with the required qualification at each HEI. ■ Preparation of Entrepreneurship Track at each HEI. To refer to the Orange Book for key processes and criteria.	■ Implementation of the elements in Entrepreneurship Talent Development Plan at each HEI. ■ Approval and implementation of Entrepreneurship Track for promotion at each HEI.

KEY PERFORMANCE INDICATORS (KPIs)

Generally, HEIs focus on the Key Performance Indicators (KPIs) set by the Ministry in evaluating the success of entrepreneurship activities or programmes conducted. One critical factor in developing Entrepreneurship Action Plan is creating an effective assessment mechanism. For Thrust 1, there are three (3) components of assessment for entrepreneurship performance indicators of HEIs, namely:

1. Percentage of student entrepreneurs at HEIs conducting business on campus during their period of study.
2. Percentage of graduate entrepreneurs at HEIs who venture into entrepreneurship after graduation.
3. Number of teaching staff with entrepreneurship expertise.

Strategies	KPIs	Target				
		2021	2022	2023	2024	2025
Strategy 1 Strengthening entrepreneurship teaching, learning and research support system	Percentage of student entrepreneurs at HEIs conducting business on campus during study	17	19	21	23	25
Strategy 2: Developing students who can create jobs through entrepreneurship	Percentage of graduate entrepreneurs at HEIs who venture into entrepreneurship after graduation	6	6	8	8	10
Strategy 3: Increasing the number of educators with entrepreneurship expertise	Number of teaching staff with entrepreneurship expertise	2,500	2,750	3,000	3,500	4,000

CONCLUSION

Synergistic ecosystem within and between HEIs and with external stakeholders involving students, staff, government, community and industries serves as an essential foundation for the success of entrepreneurship education at the HEIs. It allows entrepreneurship education as a whole to flourish and deliver more impactful outcomes. Effective teaching and learning through experiential learning method, high expertise of entrepreneurship educators, adequate facilities and clear policies are critical success factors in the entrepreneurship education ecosystem. These factors, together with the commitment of all members in the ecosystem, will ensure the successful implementation of the strategies and initiatives planned in this Thrust.

Thrust

2

Impactful Collaborations

INTRODUCTION

The ability to work with others is an important part of being an entrepreneur. This thrust focuses on impactful collaborations, a powerful tool for entrepreneurs regardless of business types. The importance of connections that students and graduates form with others and the different ways they collaborate help to grow their businesses to new levels. Impactful collaborations are also the leading factor in supporting students and graduates in developing their business and seeking funding. In innovative and technology-related ventures, collaborations help to find strategic project partners to commercialise students' and graduates' intellectual properties. In some instances, the collaboration also serves as a platform for Higher Education Institutions (HEIs) to assist in the set-up and development of entrepreneurship incubation centres.

Impactful collaborations are also the leading factor in supporting students and graduates in developing their business and seeking funding.

These incubators inspire more students and graduates to embark on entrepreneurship journey. The collaboration is not limited to industry and agencies, but also extended to collaboration among universities both locally and internationally. In sum, this thrust focuses on collaborations that are intended to

(a) inspire;
(b) grow network;
(c) educate;
(d) invite funding;
(e) help solve problems; and
(f) create a win-win situation for students and graduates in HEIs.

Figure 2-1 summarises each player's role and involvement in ensuring that all parties can leverage their strengths and gain the most benefit from the collaborations.

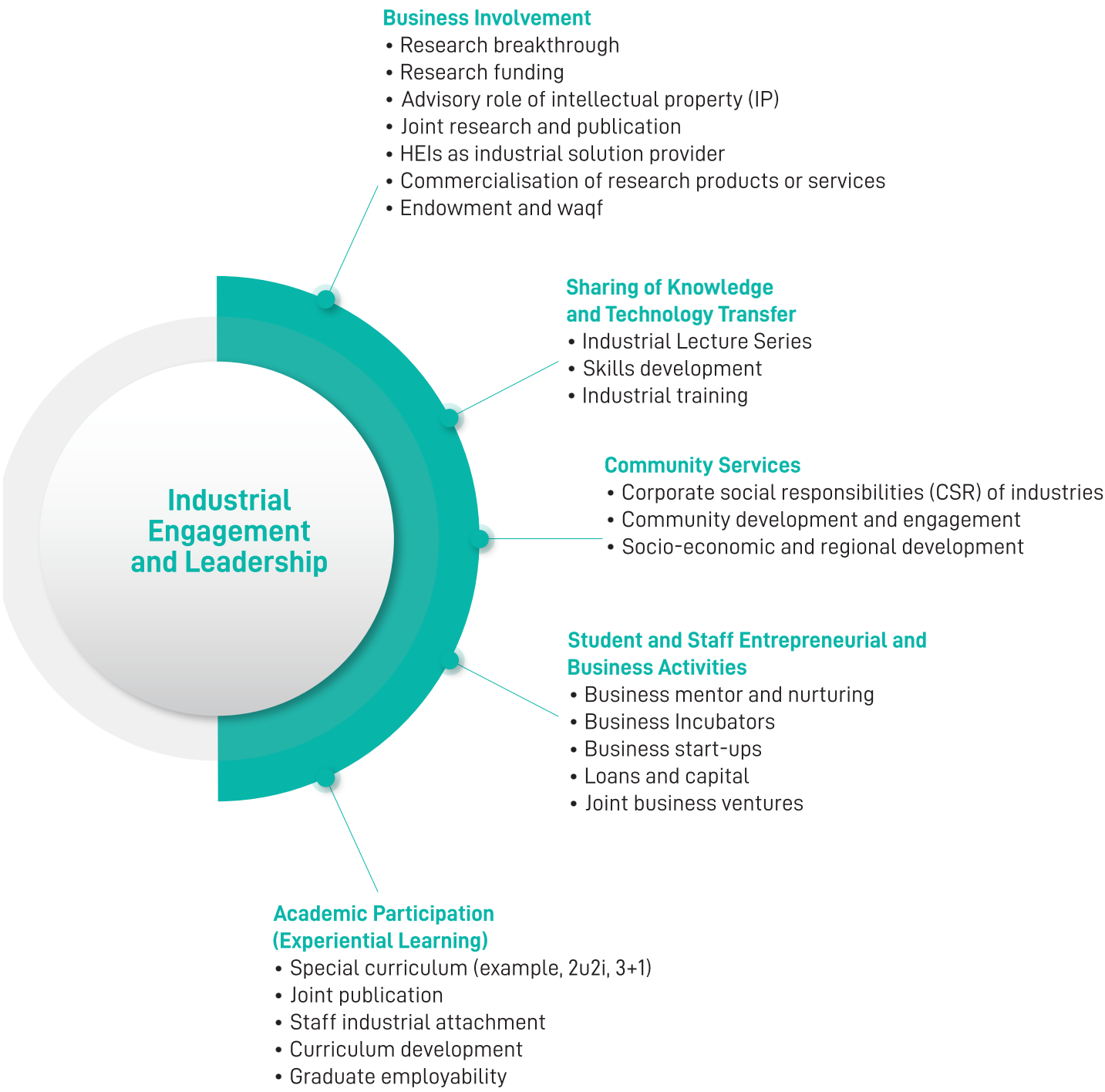


Figure 2-1: Industry, Community and HEIs Impactful Collaborations

WHY IT MATTERS

The Ministry has continuously acknowledged the intense progress of technological disruption under IR4.0 which has reshaped the demand and supply of university graduates. This factor has also been widely emphasised in Malaysia Education Blueprint 2015-2025 (Higher Education). Various efforts were taken to reduce the mismatch gap between graduates and reality job markets. The challenge is getting more significant following the global economic recession due to the COVID-19 pandemic. The structural change has affected the industry in many aspects of its business activities especially in terms of job market demands. Given these challenges, and the importance of specific industrial sectors to the country's economy, entrepreneurship education should not be isolated and lack focus. It should concentrate on industry and economic growth areas and should empower HEIs to focus on real-world issues.

In other words, the employability of future graduates in the job market very much depends on the economic sector progression, especially the industry. Hence, it is vitally essential for the university to strategically strengthen its collaboration with the industry, public sectors, and the community to increase the inter-organisational responsiveness that will help align the distinct philosophies and goals. This collaboration is instrumental in fortifying the university's role in producing holistic, entrepreneurial, and balanced graduates who fit the market demand. The intertwining roles between university and industry are crucial for the sustainability of socio-economic development in any nation.

Figure 2-2 aptly summarises the interconnectivity between the four elements in the Quadruple Helix model, the HEIs, Industry, Government and Community. The following are the discussions relating to the elements in the model.

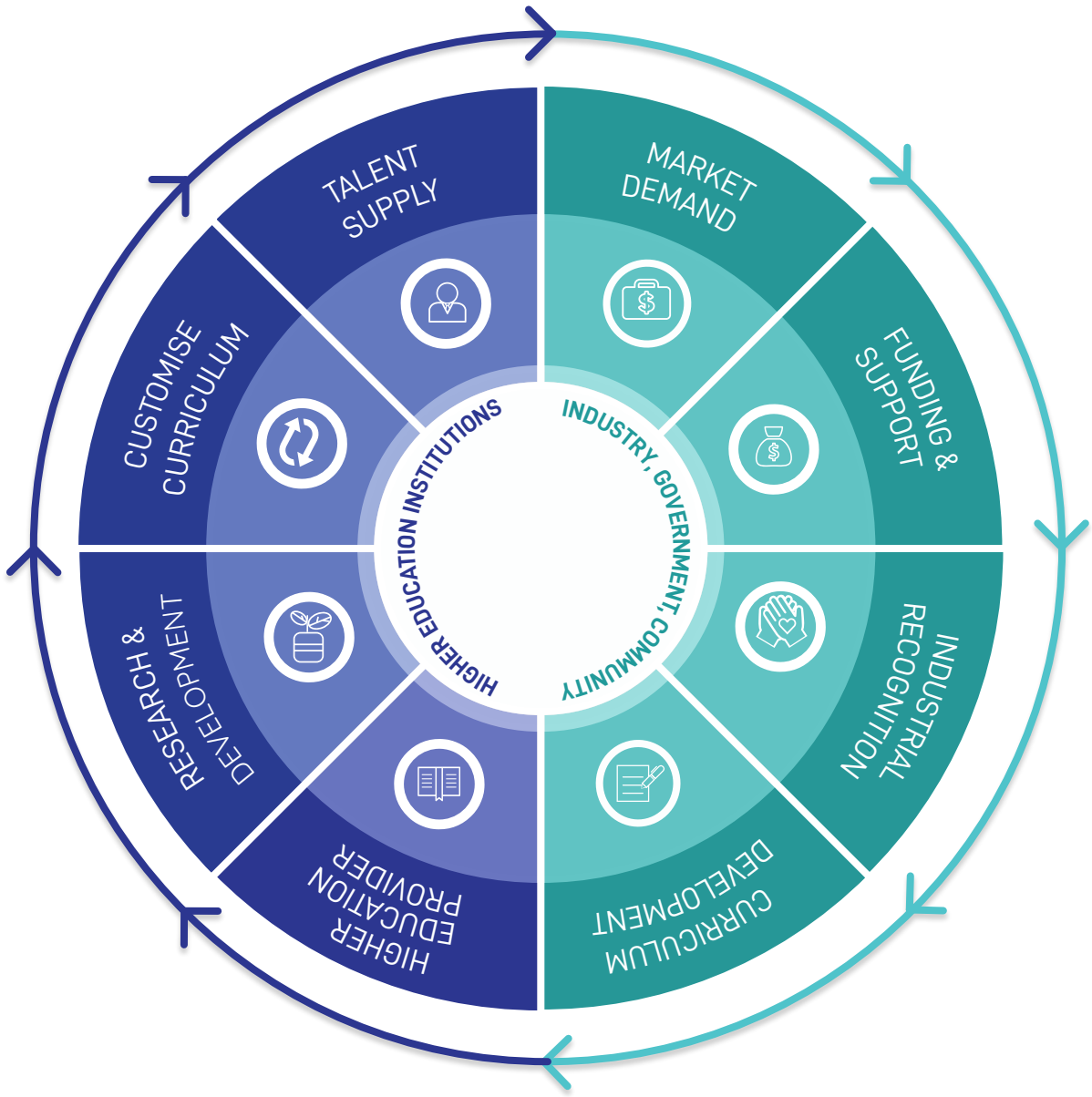


Figure 2-2: HEI- Industry Linkages, a Catalyst for Sustainable Development

Talent Supply – Job Market

The modern economies are confronted simultaneously with two persistent human resource problems: the shortage of talents with critical skills in the most strategic sectors; and the surplus of talents in both standardised modern and traditional sectors. In this situation, the demand side of the labor market is the key to adjust the imbalance. Industry, government, and community are where the university talents will be placed, either as job seekers or job creators. Hence, a strategic collaboration between industry and university is crucial to ensure that university graduates produce matched current and future market needs.

Industrial Recognition For Graduates and R&D Outputs

Many industries have introduced various international standards to minimize the risks and externalities associated with their operation. Some industrial sectors have taken it seriously by ensuring that the whole process of supply chain complies with the industrial requirement. With concern to university functions, the compliance should be emphasized and exercised so that the graduates and research output are market ready.

Support and Funding

Like other economic sectors, education also requires a continuous increase in both physical and human capital to enhance the teaching and learning ecosystem. In the past, it used to receive a significant sum of budget from the government. However, the government's role in moderating and mediating human capital supply to the industry by running and funding this sector is getting less effective. Due to rapid technological progress, the intense process of globalisation drives the higher education sector to create a direct and strong link with the industry and community. Allowing the industry to be involved in curriculum design and development and collaborating through apprenticeship programmes, internships placements, and various other training programmes and workshops will create numerous benefits for both the university and industry. These inter-organisational collaborations will help narrow the mismatch and gap between graduate supply and demand for current and future markets.

Curriculum Development of Higher Education

There is increasing concern on what type of education should be emphasised and to what extent the emphasis should be. Ideally, the products of education sector should be designed and delivered according to market demand. This initiative cannot be done appropriately without engaging the potential target markets and employers. These players can accurately identify the type of knowledge and skills needed to be infused into the curriculum so that students can benefit from it. This fact was highlighted in Malaysia Education Blueprint 2015-2025 (Higher Education), urging the industry to lead curriculum design and delivery through partnership models, including apprenticeships, hands-on trainings, real-life simulations and specialized employers training programmes.

OBJECTIVE

The objective of Thrust 2 is to empower various parties in an entrepreneurship network, which include the HEIs, government agencies, industries, and individuals at local and international levels as well as to synergize their resources and enhance mutual collaborations to achieve the intended goals. This effort is directed at formulating a viable business model which allows graduate entrepreneurs to capitalise on the entrepreneurship network. Besides, the collaboration is also essential and is the primary source for business seed-funding in various forms, including venture capitalists, crowdfunding institutions, government grants and loans, and angel investors. Specifically, the thrust aims to:

1. create a viable entrepreneurial network to facilitate entrepreneurship mentoring and coaching;

2. capitalise the entrepreneurial network to enhance graduate entrepreneurship development initiatives; and

3. enhance graduate entrepreneur business funding capabilities through an entrepreneurial network for start-ups.

STRATEGY

4

Fostering Various Collaborations via Entrepreneurship Network

This strategy emphasizes the need to increase diversification in the collaboration initiative between one HEI and another, government agencies, industries and individuals.

Collaboration helps HEIs fill in the gap on the elements that the institutions lack, especially that which exists between the HEIs and industry. Each HEI can plan for the nature and fields of collaboration according to their niche area. This effort enhances entrepreneurship network which would benefit HEIs in terms of getting their direction for graduate entrepreneurship development. Specifically, collaborations help graduate entrepreneurs gain shared knowledge, identify opportunities, build business connections, increase confidence, and raise their profiles. These are some advantages of the impactful collaboration which HEIs can acquire for their students.

INITIATIVES

01 Entrepreneurship Advisory Committee

HEIs should establish an Entrepreneurship Advisory Committee, which involves representatives from entrepreneurship-related agencies and industries. This Committee would serve as a governance entity that directs and oversees entrepreneurship activities executed within respective HEIs. Such initiative allows the Advisory Committee to provide industrial exposure and bring in market opportunities directly. Thus, it will strengthen the HEIs strategy in establishing a holistic, entrepreneurial ecosystem.

HEIs are advised to have a significant number of agencies and industry players within the Committee. Fresh and up-to-date views from the industry will enrich the experience and broaden the knowledge so that better and practical entrepreneurship initiatives can be formulated at respective HEIs. The selection of agencies and industries must be based on related niche areas and location of the HEIs. The Committee would provide guidance and advice on the strategy and development of entrepreneurship programmes, which include funding, project implementation opportunities such as mentors for student projects, judges for pitching competitions, as well as speakers, and trainers for various entrepreneurship activities.

02 Agency and industry network

The network between HEIs and various agencies, industries and alumni will create a massive opportunity for entrepreneurship development via education, research and services. Each HEI is to identify and provide their students with the agencies and industries that can collaborate or become partners in conducting sustainable entrepreneurship programmes.

The involvement of those networks in various programmes, such as mentors for student businesses, will enhance the entrepreneurial initiatives within the HEIs. Apart from mentors, they can also play many other roles to help those students develop aspirations to become entrepreneurs.

03 Entrepreneur-In-Residence

The nomination of a practitioner or entrepreneur to be the entrepreneur-in-residence will directly impact graduate entrepreneurship development. The involvement entails the practitioner or entrepreneur to share their expertise with the graduates or to work alongside them to strengthen the entrepreneurship development agenda of HEIs. The appointed individual can serve as a Mentor or Coach to a graduate entrepreneur and, at the same time, be attached to HEIs Entrepreneurship Centre for a stipulated period and be assigned Key Result Area to achieve. HEIs may appoint any successful entrepreneurs for the post with approval from the top management of HEIs.

STRATEGY

5

Intensifying Seed Funding for Student Businesses

Besides graduate entrepreneurship development, collaboration with external parties is intended to benefit graduate entrepreneurship in seed funding.

Seed funding can be in the form of grants or even loans. Several government agencies provide start-ups and pre-commercialisation grants that are helpful in financing early-stage graduate entrepreneurship. In a similar vein, industries and individuals can also fund graduate entrepreneurship through equity ownership. Specifically, venture capitalists, crowdfunding entities, and angel investors are expected to contribute through this strategy. Thus, HEIs must expand networking coverage and involve graduate entrepreneurs in pitching and business matching activities for early finance ventures.

INITIATIVES

01 Seed funding for student businesses

Access to funding would be one criterion that assists early-stage start-up of a business venture. Such assistance can be conducted via grant, loan, or micro-credit, either from agencies, industries or individuals. The HEI Entrepreneurship Centre must identify potential agencies, industries and individuals and explore all the possible opportunities within the network and make the list of those accessible to students. The centre must also establish an online platform for investors to contribute funds for students' businesses.

02 Online platform for fund contributions

Another initiative to assist student business funding is via the establishment of an online platform to facilitate graduate potential business matching. Specifically, students can use the developed online platform to showcase their products and services visibly for public viewing. The showcase allows convenient access to the market, providing potential investors with opportunities to either venture into graduate entrepreneurs' early-stage start-ups or contribute to their business expansion. This platform is meant for the showcase of all potential products, services and business ideas that are derived from HEIs.

03 Matching activities between investors and student businesses

HEIs are expected to promote and conduct "match" exercise between promising talents and potential investors. This activity allows graduate entrepreneurs to pitch and secure funding to manage their early-stage venture or to expand their business. The Entrepreneurship Centres at respective HEIs will also participate in other events organised by third-party organisations with similar aims: securing funding and facilitating business matching. Thus, this kind of activity encourages continuous engagement with agencies, industries, and individuals to form impactful collaborations.

KEY MEASUREMENTS

The success of the strategies and initiatives will be monitored through their execution and achievements of the Key Performance Indicators (KPIs). It is essential for each strategy to have key milestones to assist HEIs in gauging their performance. In some HEIs, the strategies and initiatives are already well established, while in some others, they may need additional resources and enhancements. Considering the different maturity stages and uniqueness of each HEI, the target date for the Milestones will be different from one HEI to another.

MONITORING OF INITIATIVES

	Milestone 1	Milestone 2
Strategy 4: **Fostering Various Collaborations via Entrepreneurship Network**	■ Establishment of Entrepreneurship Advisory Committee consisting of representatives from Agencies and Industries. ■ Identification of agency or industry network which can support HEIs entrepreneurship development.	■ Appointment of entrepreneur-in-residence as a mentor and the expert of HEIs entrepreneurship agenda. ■ Execution of programmes with agency or industry network which can support HEIs entrepreneurship development.
Strategy 5: **Intensifying Seed Funding for Student Businesses**	■ Setting-up of Seed Funding for student businesses through agency or industry networking.	■ Establishment of an online platform for investors to contribute fund for student businesses. ■ Execution of matching activities between investors and student businesses.

KEY PERFORMANCE INDICATORS (KPIs)

This thrust is made of two strategies which are operationalised through several initiatives. One strategy emphasises Fostering Various Collaboration via Entrepreneurship Network. The achievement is measured by the number of collaborations with agencies, industries and NGOs, and associations with HEIs (local or international). Specifically, each HEI needs to collaborate and successfully obtain seed-funding, advisory services, training, coaching, product development, incubator, marketing, logistic or entrepreneur internship programme for a duration of three to six months. Every collaboration made needs to be proven with a Letter of Intent (LOI), Memorandum of Understanding (MOU), Memorandum of Agreement (MOA) or Letter of Appreciation with the collaborating party.

The second strategy focuses on Intensifying Seed Funding for Students Businesses, measured by the number of companies, enterprises or business projects which have successfully obtained fund injection. HEIs will be measured by the total number of companies, enterprises or business projects funded through Angel Investors, Venture Capitalists, Crowd Funding Entities, Government agency grants, and pitching competition prizes related to entrepreneurship.

Strategies	KPIs	Target				
		2021	2022	2023	2024	2025
Strategy 4: **Fostering Various Collaborations via Entrepreneurship Network**	The number of collaborations with agencies, industries and NGOs, and associations with HEIs (local or international)	105	126	147	168	189
Strategy 5: **Intensifying Seed Funding for Student Businesses**	The total number of companies, enterprises or business projects funded through angel investors, venture capitalists, crowd funding entities, government agency grant, and pitching competition prizes related to entrepreneurship	105	126	147	168	189

CONCLUSION

This thrust focuses on the entrepreneurial network that students and graduate entrepreneur can capitalise in their entrepreneurial journey. It can be in the form of training or funding for their early stage venture. The initiatives are designed to benefit not only the students but also the HEIs so that more sustainable job creators can be produced within the targeted 5 years (2021-2025). In sum, this strategy provides a pathway to narrow the gap between the HEIs and the agencies or industries by nurturing more demand-driven entrepreneurs.

Thrust

3

Innovation and Technology in Entrepreneurship

INTRODUCTION

Innovation embodies new ideas,new products, new processes, a new marketing method, or a new organisational method in business practices. Innovation transforms ideas and creates new values. Ultimately, the goal is to increase wealth and socio-economic growth by means of opportunity-based entrepreneurship with and emphasis on innovation and technology. Figure 3-1 describes the interaction among the critical elements that produce innovation in entrepreneurship at Higher Education Institutions (HEIs)

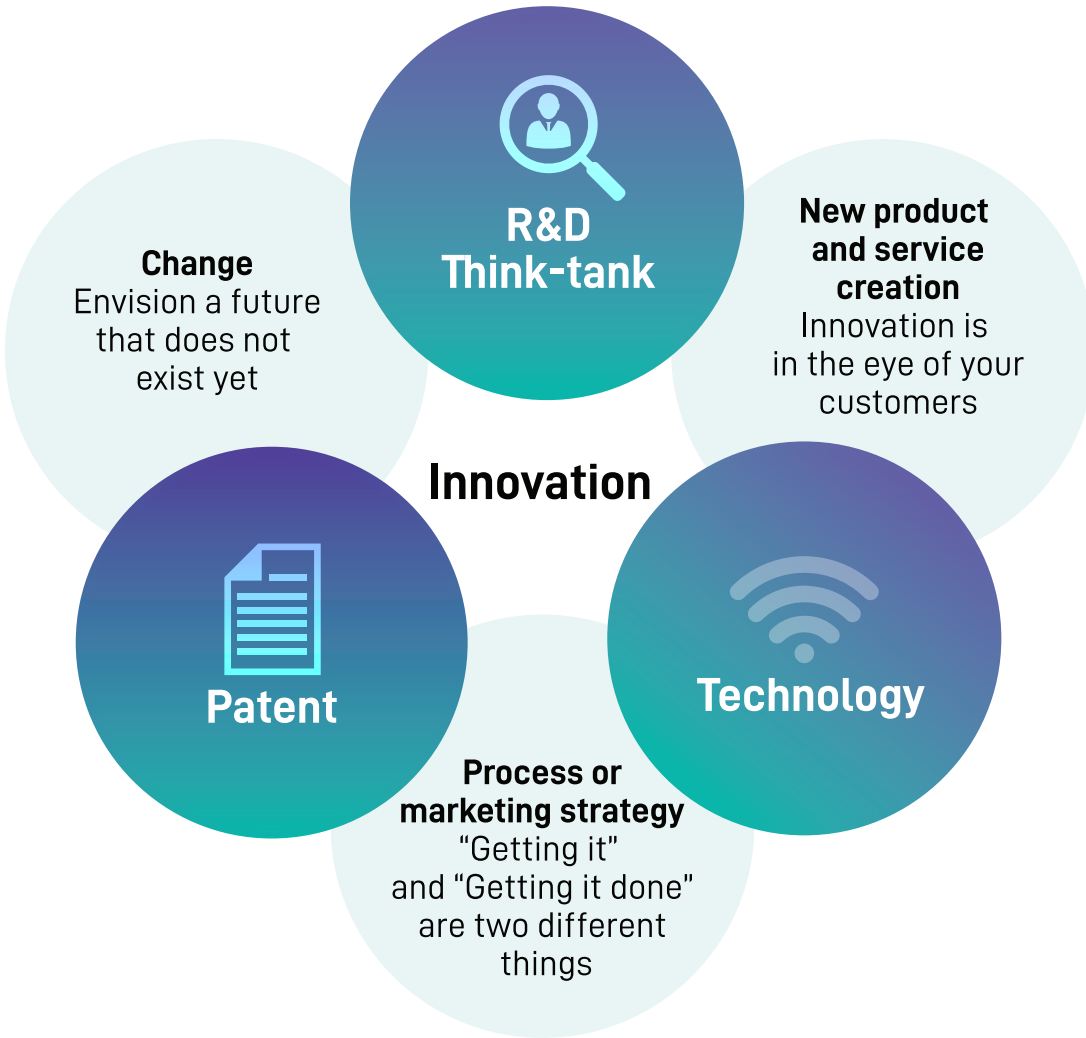


Figure 3-1: Critical Elements that Produce Innovation in Entrepreneurship

WHY IT MATTERS

Entrepreneurs must stay focused to ensure their business remains relevant and sustainable. They have to create new ideas, significantly improve their products (goods or services), enhance their processes through technological advancement, find new ways of marketing their products, or organise their business. They need to replicate the idea to be as cost-effective as possible while at the same time, still satisfying a particular need. They must become innovative and use innovation as a specific tool that can exploit change as the opportunity for various ideas and services.

There are two characteristics of successful entrepreneurs: those who depend on their motivation to start a business and those who have the agility to adapt to change.

Opportunity-based entrepreneurs start their businesses to pursue an opportunity, while necessity-based entrepreneurs are more requirement-based and survival-based. The different motivation suggests that opportunity-based entrepreneurs are more agile and tend to adopt or adapt technology and innovation. This agility also suggests that opportunity-based entrepreneurs would be able to stay longer in self-employment than necessity-based entrepreneurs due to their ability to convert opportunities into profitable offerings which include products, services and even processes.

OBJECTIVE

The objective of Thrust 3 is to foster student entrepreneurs into opportunity-based entrepreneurs who can continuously benefit from innovation and technology, thus encouraging them to develop start-ups that are related to innovation, technology or digitally propelled enterprises. Students should challenge themselves and embed innovation and technology throughout the ideation and opportunity recognition processes. The output is seen as improvements in product or services, processes, organisation, marketing or finance. The thrust aims to:

1. foster enculturation of entrepreneurship that is based on innovation and technology.

2. encourage innovation through practical actions for socio-economic transformation and inclusive growth.

3. develop students' and graduates' enterprises with distinctive capabilities based on innovation or at least based on some applications of science or technology.

The environment or ecosystem provided by HEIs determines the type of entrepreneurs they produce. HEIs with healthy enabling conditions foster more opportunity-based entrepreneurs, while HEIs with less conducive supporting conditions tend to breed necessity-based entrepreneurs. Hence, the strategies put in place by HEIs and its executions are vital to ensure that they produce more opportunity-based entrepreneurs. Expectedly, there will be challenges faced by HEIs, particularly in dealing with negativity, pessimism, and doubt from students.

In sum, the HEIs should incorporate an encouraging and enabling environment. They must also break the internal barrier of innovation such as the fear of change, fear of making mistakes, fear of trying, fear of failure, fear due to negative thoughts and the improper motivational push among their students. Figure 3-2 summarises the salient points of the difference between opportunity and necessity-based entrepreneurs.

Opportunity-based entrepreneurs
are entrepreneurs by choice who ses and seize business opportunities in the market

Necessity-based entrepreneurs
are entrepreneurs by needs who choose to be entrepreneurs out of survival

Opportunity-driven HEIs
are HEIs with healthy enabling conditions which boost the growth of more opportunity-based entrepreneurs

Necessity-based HEIs
are HEIs with less conducive supporting environment which promote the breed of necessity-based entrepreneurs

Figure 3-2: Difference between opportunity and necessity-based entrepreneurs

STRATEGY

6

Encouraging Students to Leverage Innovation and Technology in Entrepreneurship

The strategy focuses on the importance of nurturing students to leverage innovation and technology in starting, operating, and sustaining their business venture. In the digital transformation era, the HEIs should revolutionize the ecosystem of campus entrepreneurship by exploiting new technologies and embedding innovations to unlock more feasible yet challenging business opportunities.

Malaysia Education Blueprint 2015-205 (HIgher Education), MEB (HE) advocates the concept of appreciating diverse idea and critical thinking. Enhancing the practice of solvig a problem with entrepreneurial qualities and skills will increase students' curiosity and harness their creativity. These fundamental attributes and learnable. Each HEI can introduce different learning experiences based on problem-based, work-based, action-based learning that often challenge students' mindset. Programmes should incorporat activities that require the skills and knowledge that the student are trained or taught. These initiatives would increase the likelihood of students applying their trained know-how of science and technology to become entrepreneurial people or, specifically, entrepreneurial scientists and technologists.

INITIATIVES

01 Innovation-driven entrepreneurship programmes

Innovation and breakthrough ideas that drive student start-ups should be intensified by implementing innovation-driven entrepreneurship programmes such as innovation competition, social innovation boot camp, start-up weekend, and data-driven hackathon or similar programmes.

Besides, the implementation of high impact entrepreneurship programme should be used as a platform for the HEIs to identify and nurture innovation champions should be groomed to be innovation-driven entrepreneurs who can produce state-of-the-art offerings to the market. Their skills should also include determining local and identifying potential substitutes for their ideas and product offerings.

Analysis beyond local competitors will provide some sense of anticipation that would prepare the students for a more competitive global market.

Students who have high entrepreneurship interest or mindset will be encouraged and guided to transform their innovative ideas into prototypes using relevant technologies through these programme. Additionally, novice student entrepreneurs may also use this platform to validate the business further, challenge their current business model and adopt new digital marketing approaches in promoting their business offerings.

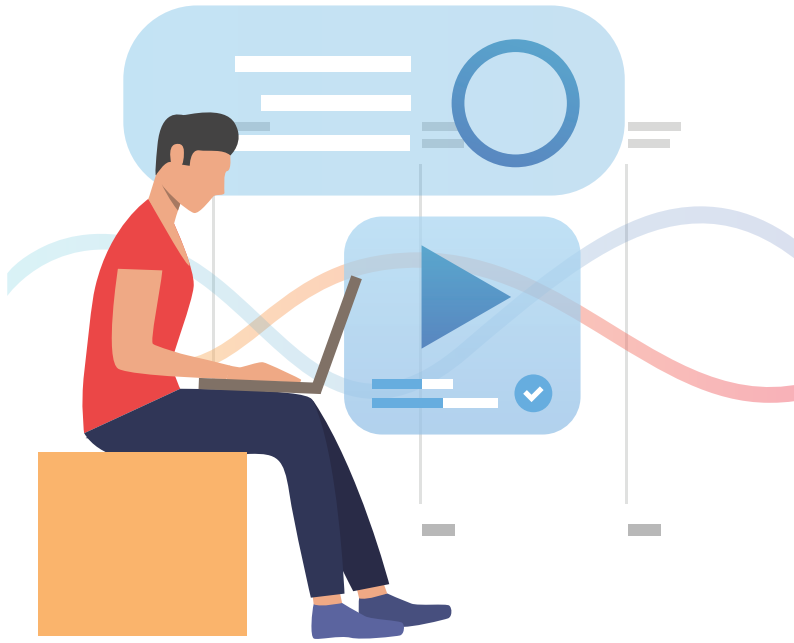
INITIATIVES

02 Commercialisation of student's projects or products

The implementation of innovation-driven entrepreneurship programmes which nurture students to generate a great idea or design an innovative product concept should be supported by an impactful business development programme. The programme's main purpose is to commercialise the students' projects into viable businesses. It should also allow the students to acquire knowledge and skills associated with developing and commercialising a new product, and more importantly, developing a viable business plan to commercialise the results.

Students who are enrolled in this programme work with their innovation projects or final year projects. At the same time, these students will learn the critical aspects of commercialisation and entrepreneurship. That means the development of a business plan for their innovation project is embedded in the educational experience. For example, the implementation of Wealth Creation Lab by UTM has provided opportunities for the students with innovation projects to learn Five (5) Discipline of Innovation as outlined by Stanford Research Institute (SRI). In this two-week programme, students will learn how to validate their innovation project, develop a business model, and finally produce a business plan that outlines their strategies to commercialise their innovated projects or products.

Projects or products designed to be marketed digitally, such as via the internet or social media, will automatically be characterized as a web presence. Proper digital marketing design and bigger audiences beyond local prospects would increase the possibility of commercialisation through the availability of a massive dataset of prospects. With the massive dataset, students could better understand the customer profile, thus preparing them to have a more significant international market share.



03 Innovation-based entrepreneurship accelerator programme

The entrepreneurship accelerator programme consists of a series of masterclasses and workshops led by field experts, pitch events, business matching with relevant mentors, and innovation challenges.

Each HEI should initiate or increase an innovation-based entrepreneurship accelerator programme to support innovation activities among the students towards creating student start-ups. This accelerator programme should be designed by each HEI based on the niche programmes offered to the students working on validated innovation ideas or early-stage start-ups. The aim is for the students to realize their potential and achieve sustainable growth for their business venture. The entrepreneurship accelerator programme consists of a series of masterclasses and workshops led by field experts, pitch events, business matching with relevant mentors, and innovation challenges.

Several models of established accelerator programme are Y Combinator and TechStars. Y Combinator is stationed in Mountain View, California and founded in 2005. Examples of business ideas that came from this accelerator are Dropbox and Airbnb. TechStars has several offices in Boulder, Boston, New York, Seattle, San Antonio and founded in 2007. Start-up Weekend is an example of an innovative programme designed by TechStars and is very successful worldwide.

STRATEGY

7

Encouraging the Establishment of Innovation, Technology and Digitally-driven Start-Up Enterprises

The strategy highlights the importance of establishing innovation, technology and digitally-driven start-up enterprises.

A start-up is an enterprise or project initiated by an entrepreneur to seek, effectively develop, and validate a scalable business model. With this definition in place, the enterprise or project must foster innovation where the culture of discovering a new way to do things is emphasised. This action means the students are harnessing their creative ability to be innovative and establish Innovation, Technology or Digital enterprises. Businesses are currently moving beyond national or geographical borders; hence, digitally-driven enterprises will perform better either locally or globally. They would also have better sustainability through extensive prospects and customers.

INITIATIVES

01 Start-up company that utilises innovation and technology

Forming a start-up company based on innovation and technology is generally perceived as challenging. Start-ups and entrepreneurs face many challenges while forming an innovative technological company. The challenges include matching the value proposition with customer needs, getting Intellectual Property protection, consuming a lot of time to market technology products and services, and undergoing difficulties with regards to the nature of emerging and disruptive technology. Entrepreneurship programmes should consider the nature of innovation and technology diffusion critical for adoption and their usability in each and across different market. They must design custom-fit solutions and create a technological business model. These considerations may improve and increase the likelihood of students to form their start-up companies, regardless of whether their background is Science and Technology or Social Sciences, technical or non-technical.

02 Collaboration with icons, celebrity entrepreneurs (celebpreneurs) and agencies related to innovation and technology

In line with the strategies outlined in Thrust 2, the collaboration between HEIs and various agencies and their icons should be strengthened, especially in conducting impactful entrepreneurship programmes for the students. In this regard, HEIs should leverage these networks by partnering with any agency, industry, or alumni focusing on innovation and technology.

Additionally, the HEIs are encouraged to organise an innovation showcase or competition by inviting industrial partners as judges, mentors, or facilitators. Students would have a chance to showcase their innovations to the experts and obtain feedback on improving and commercialising them.

The collaboration with agencies often provides better potential for global market penetration. This possibility is due to the nature of agencies which is to provide support, network and improved intelligence for international businesses and promising global footprint. Evidence shows students who came top in business challenges with collaborators have a more precise international roadmap.

Students will get significant insights into business opportunities due to their exposure to the latest innovations and technologies from HEIs' partners. The students may also be inspired by these partners to develop their innovation as they can collaborate with industrial experts, mentees, or business partners.

INITIATIVES

03 Graduate entrepreneur icons in innovation and technology

Technology students are often skilful innovators, but they do not choose to be entrepreneurs as the career comes together with inherent risks. However, with their problem-solving competencies, technology students would just need a few pushes and appropriate skills, such as business development and business modelling, to bring them forward. The juniors can learn about their seniors' roadmap and journey, who have currently become the Icons.

Icons among successful graduates whose businesses relate closely to innovations and technology should be celebrated to inspire more students to undertake innovation and technology-based ventures.

Students will be fascinated with the start-ups, companies, leadership brought by the icons since they are developed and nurtured by the HEIs.

The icons may share their ups and downs, failures and success in the winding journey to become global champions within international platforms and not just limited to local dominance.

The icons life stories and journeys are motivating because they are genuinely inspiring. Those particularly in technology can lure the students to become inno-tech entrepreneurs.

KEY MEASUREMENTS

The success of the strategies and initiatives will be monitored through their execution and achievements of the Key Performance Indicators (KPIs). It is essential for each strategy to have key milestones to assist HEIs in gauging their performance. In some HEIs, the strategies and initiatives are already well established, while in some others, they may need additional resources and enhancements. Considering the different stages and uniqueness of each HEI, the target date for the Milestones will be different from one HEI to another.

MONITORING OF INITIATIVES

	Milestone 1	Milestone 2
Strategy 6: **Encouraging Students to Leverage Innovation and Technology in Entrepreneurship**	■ Design of innovation-driven entrepreneurship programmes. ■ Recognition of student projects or products for commercialisation. ■ Design of innovation-based entrepreneurship accelerator programme.	■ Execution of innovation -driven entrepreneurship programmes. ■ Execution of commercialisation activities of student projects or products. ■ Implementation of the innovation-based entrepreneurship accelerator programme .
Strategy 7: **Encourage the Establishment of Innovation, Technology and Digitally-Driven Start-Up Enterprises**	■ Promotion of programmes about formation of a Start-up Company that utilises innovation and technology among students. ■ Identification of the collaboration with icons or celebrity entrepreneurs (celebpreneur), graduate entrepreneur and agencies related to innovation and technology.	■ Execution of the programme towards the formation of a Start-up Company that utilises innovation and technology among students. ■ Launch of the collaboration with icons or celebrity entrepreneurs (celebpreneur), graduate entrepreneur and agencies related to innovation and technology.

KEY PERFORMANCE INDICATORS (KPIs)

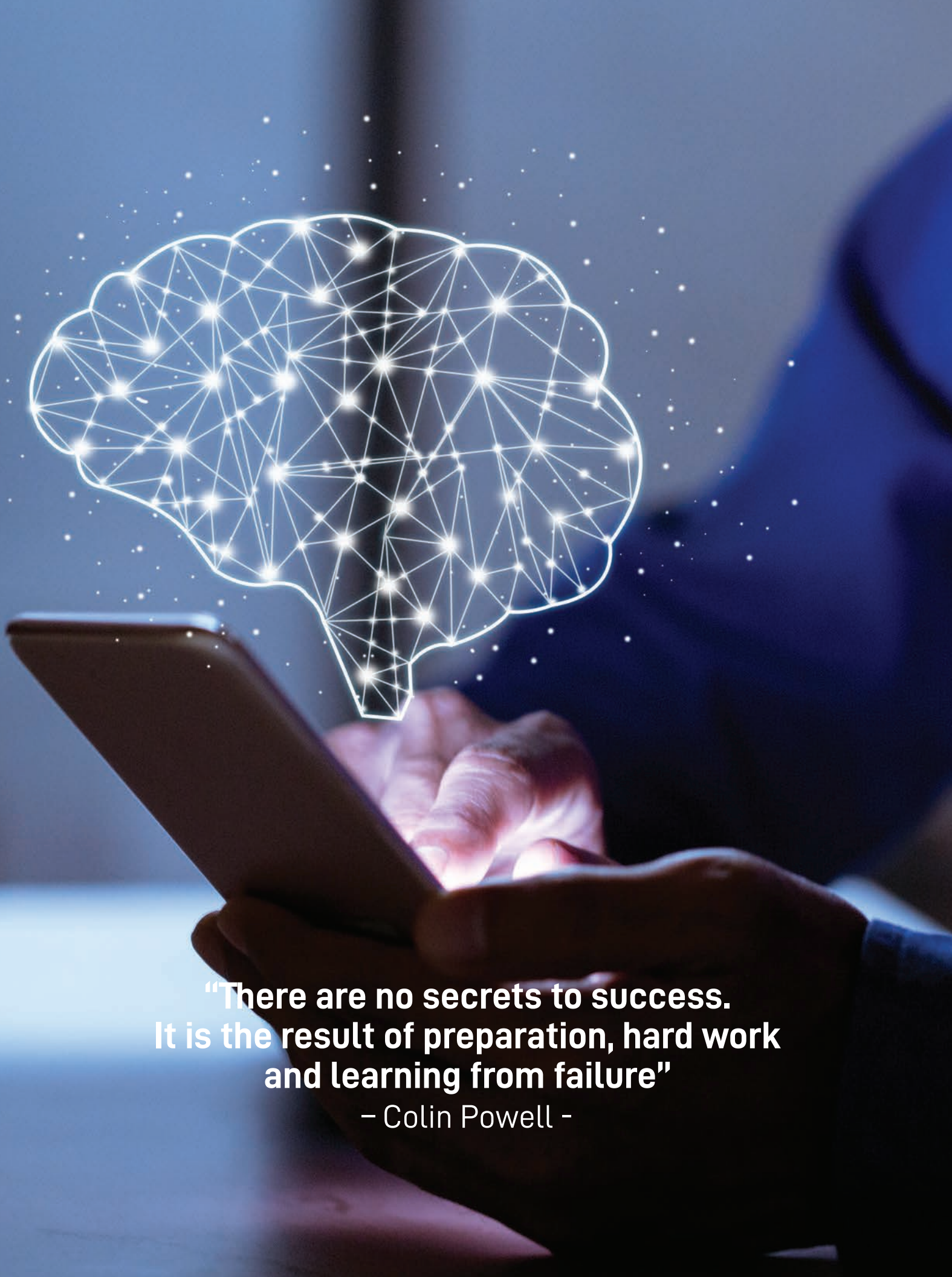
The thrust is driven by two strategies, Strategy 6 and 7, which are operationalised through six initiatives. The sixth strategy aims to encourage students to leverage innovation and technology in their entrepreneurship endeavours. The achievement is measured through the number of students engaged in innovation and technology-based programmes throughout all HEIs. To support this strategy, HEIs should put their utmost effort into developing innovation and technology-based accelerator programmes. These programmes monitor the business development stages that are very distinct from the non-technology business development.

The seventh strategy emphasises the establishment of innovation, technology and digitally-driven start-up enterprises. To realise this strategy, it must include road mapping for start-ups and pathway setting for innovative or technology-based start-ups. Students can obtain proper guidance and motivation by having smart collaborations with successful tech-entrepreneurs and tech-agencies.

STRATEGY	KPIs	Target				
		2021	2022	2023	2024	2025
Strategy 6: **Encouraging Students to Leverage Innovation and Technology in Entrepreneurship**	The **number of students** engaged in innovation and technology-based programmes at HEIs	4,200	4,200	6,300	6,300	8,400
Strategy 7: **Encouraging the Establishment of Innovation, Technology and Digitally-Driven Start-Up Enterprises**	The **number of student start-ups** based on innovation and technology at HEIs	420	420	525	525	630

CONCLUSION

Innovation and technology are essential in driving and sustaining opportunity-based graduate entrepreneurs. The transformation of necessity-based into opportunity-based entrepreneurship will help push the country's economy into a high-income economy and enhance the entrepreneurs' capability and capacity to become global players. With many challenges faced by necessity-based entrepreneurs, Thrust 3: Innovation and Technology in Entrepreneurship, has laid down powerful strategies and initiatives to prepare the new breed of Malaysian graduate entrepreneurs to be well-equipped to brace for the demanding future.


"There are no secrets to success.
It is the result of preparation, hard work
and learning from failure"
– Colin Powell -

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GLOSSARY

Acculturation of Entrepreneurship	To inculcate entrepreneurship attributes during the early part of the students' study
Best Entrepreneurship Mentor Award	An award to recognise excellence in mentoring/coaching supports to students within the higher education sector in Malaysia. It is one of the categories of award from Ministry of Higher Education Entrepreneurial Award (MEA).
Best Social Entrepreneurship Project Award	An award to recognise excellence in the delivery of a social entrepreneurship project that demonstrated impact in stimulating entrepreneurship at Higher Education Institutions (HEIs) and/or within its local environment with proven social and/or economic benefits. It is one of the categories of award from Ministry of Higher Education Entrepreneurial Award (MEA).
Best Student Enterprise Award	An award to recognise excellence in student and/or graduate start-ups or new enterprises that have generated significant profitability and made a positive impact on the stakeholders. It is one of the categories of award from Ministry of Higher Education Entrepreneurial Award (MEA).
Best Student Entrepreneurship Award	One of the categories of award from Ministry of Higher Education Entrepreneurial Award (MEA).
Certified educators	Those who obtain recognition or accreditation from national or international accredited institutions or undergo attachment and cross placement program in industry or SMEs for a specified period.
Entrepreneurial Educator Enhancement Program (3EP)	The programme is organised to improve the competency and effectiveness of academics and administrative staff in advising and mentoring student entrepreneurs.
Entrepreneurial Leadership Programme (ELP)	One of the Ministry's efforts to improve entrepreneurs' and entrepreneurial administrators' competence in Higher Education Institutions (HEIs).
Entrepreneur-in-residence	A position most often held by successful entrepreneurs in venture capital firms, private equity firms, startup accelerators, law firms or business schools. Also refers to a mentor and expert.
Entrepreneurship	Refers to the concept of developing and managing a business venture in order to gain profit by taking several risks in the corporate world.
Entrepreneurship Advisory Committee	Involves representatives from entrepreneurship-related agencies and industries.

Entrepreneurship Curriculum	To enhance students' knowledge, morals, values, entrepreneurial mindset, and soft skills.
Entrepreneurship education	Seeks to provide students with the knowledge, skills and motivation to encourage entrepreneurial success in a variety of settings.
Entrepreneurship Integrated Education	Serves as guidelines for the institutions to infuse a well-rounded entrepreneurship knowledge into the tertiary education curriculum.
Entrepreneurship policies	Play essential roles as sources of authority in enhancing entrepreneurial activities and rightfully supporting business creation and retention.
Entrepreneurship sabbatical programs	Allow academics to have a chance to step back from their role at work and focus on professional development.
Family Business Enhancement Programme	A programme organised by Universiti Kebangsaan Malaysia (UKM) that targeted students whose families run a business. The programme helped them to upgrade their businesses to a higher level using digital platforms.
Fourth Industrial Revolution	A way of describing of blurring of boundaries between the physical, digital and biological worlds. It's a fusion of advance in artificial intelligence (AI), robotics, the Internet of Things (IoT), 3D printing, genetic engineering, quantum computing, and other technologies.
Global Entrepreneurship Monitor (GEM)	A project carried out by a research consortium dedicated to understanding the relationship between entrepreneurship and national economic development.
Green lane policy	Allows student-owned businesses and student cooperatives to have the opportunity to be among the service providers for their respective Higher Education Institutions (HEIs) within a specific boundary.
Institutional Awards	One of the categories of award from Ministry of Higher Education Entrepreneurial Award (MEA).
Job Creator Framework (JCF)	To provide the roadmap for entrepreneurship education at Higher Education Institutions (HEIs)
Job creators	A person, organization, or activity regarded as providing new opportunities for paid employment (Job generators)
Job seekers	A person who is unemployed and looking for work
Key Performance Indicators (KPIs)	Set by the Ministry in evaluating the success, especially in entrepreneurship activities or programmes

Malaysia Education Blueprint 2015-2025 (Higher Education)	To produce balanced and holistic graduates with entrepreneurial mindsets and to nurture 'job creators' rather than just 'job seekers'.
Ministry of Higher Education Entrepreneurial Award (MEA)	Act as a catalyst for the creation of a conducive entrepreneurial ecosystem and holistic entrepreneurship development in Malaysian Higher Education Institutions (HEIs).
Ministry of Higher Education Malaysia	Ministry of the Government of Malaysia that is responsible for higher education, polytechnic, community college, student loan, accreditation and student volunteer.
Motivational Index	This index measures the relationship between opportunity entrepreneurship and necessity entrepreneurship, where the higher the score of the index, the greater the opportunity motivation.
National Entrepreneurship Policy 2030 (NEP 2030)	A long-term national strategy to transform Malaysia into an entrepreneurial nation by the year 2030. NEP 2030 is designed to develop an entrepreneurial ecosystem in Malaysia that will enhance the country's competitiveness in the global economy amidst increasing competition and challenges emerging from Industry 4.0 as well as creating an entrepreneurial culture in the Malaysian society.
Orange Book	Orange Book serves as a guideline for Malaysian Higher Learning Institutions (HLIs) in their efforts to create academic career pathways based on the New Academia Talent Framework introduced in the MEB (HE). Differentiated Career Pathways (DCP) is a framework for creating academic ecosystems capable of nurturing excellence and leadership in teaching, research, professional practice and institutional leadership.
PolyCC Incubator Classroom	Formerly known as Community College Incubator Classroom (CCIC). The students conducted businesses in areas related to the field of studies at polytechnics or community colleges.
Social Entrepreneurship (SE)	Refers to business people who use their business to create social value. Social entrepreneurship (SE) activity innovatively creates realistic social value.
Student entrepreneurship incubators	The incubators that provide graduate entrepreneurs with expertise, networks, and tools which significantly contribute to their successful business ventures.
Student entrepreneurship industrial training	Allow students to apply their entrepreneurship knowledge and skills and obtain real business experience.
Synergistic Entrepreneurial Ecosystem	The interconnectedness and collaboration of entrepreneurial elements such as academia, industry, government, and community that connect, mediate and govern the performance of entrepreneurial

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