MINISTRY OF HIGHER EDUCATION

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EIE

MOHE Guide To

ENTREPRENEURSHIP INTEGRATED EDUCATION

MOHE GUIDE TO ENTREPRENEURSHIP INTEGRATED EDUCATION (EIE)

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EIE

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ENTREPRENEURSHIP INTEGRATED EDUCATION

NORAINI

Foreword

Assalamualaikum warahmatullahi wabarakatuh and Salam Sejahtera.

The Entrepreneurship Integrated Education (EIE) for Higher Learning Institutions (HLIs) serves as guidelines for the institutions to infuse a well rounded entrepreneurship knowledge into the tertiary education curriculum to realise the vision of the country to produce holistic, entrepreneurial and balanced graduates.

The Entrepreneurship Integrated Education (EIE) in Malaysia aims to incorporate and suggest a holistic model in enhancing entrepreneurship curriculum and programmes among the HLIs. It also emphasises on the importance of faculty members, curriculum, governance and HLIs-industry/agency linkages. It is hoped that the ultimate aim of creating a job creator framework could be achieved through a formation of collaborative partnerships; mutual recognition of needs, shared problems and solutions within the stakeholders.

This guide and its entire framework shall be the thrust for the institution management to design an integrated and competitive programme by embracing new knowledge, infusion of latest technology and quality assessment while fostering the right entrepreneurship ecosystem. A clear entrepreneurship education direction supports by strong entrepreneurship governance at both the Ministry and HLIs shall spur the student entrepreneurship agenda of the country.

Higher education institutions must play a proactive role and be responsive to the changes in economic and business landscape. Entrepreneurship enculturation process through the six (6) focus areas of curriculum will allow students to strengthen their knowledge, skills, mindset, behavioural and to venture into new business creations and other entrepreneurial activities. It is the aspiration of the Government through a comprehensive and an integrated entrepreneurship education, it can inspire graduates to be dynamic and resilient in doing business while they are in campus or after departing from their institutions.

I wish to thank the Steering Committee in establishing this MOHE Guide To Entrepreneurship Integrated Education (EIE) in nurturing Malaysia to becoming an Entrepreneurship Nation.

YB. Datuk Seri Dr. Noraini Ahmad
Minister of Higher Education

Datuk Seri Dr. Mazlan Yusoff
Secretary General
Ministry of Higher Education Malaysia

Assalamualaikum wbt. and Greetings to all

Ensuring graduates having an entrepreneurial spirit is one of the core missions of the Ministry of Higher Education Malaysia. Realising the need to instil entrepreneurial orientation with a holistic entrepreneurship ecosystem that would support more graduates to embrace entrepreneurship as the first-choice career is key to mitigate the crisis; hence, upholding the core principle and spirit to have a clear guideline of how an integrated entrepreneurship education can be fostered at the Malaysian HLIs. To achieve this, enshrining the two essential principles – 'what is actually being practiced and best practices' are critical. I believe these two crucial elements are critical in identifying the gaps that will help to leap-frog entrepreneurship education in achieving the vision of becoming a high-income nation.

As the business environment is becoming complex and challenging, it is timely for graduates to be more versatile, brave and resilience, and making entrepreneurship as the best career option than are being dependent on job markets. Therefore, it is the role of the HLIs to motivate and facilitate students toward this direction of transforming students to become entrepreneurs. I trust this book will guide the institutions to develop appropriate entrepreneurship programmes across all discipline of studies.

I would like to take this opportunity on behalf of the Ministry of Higher Education, to thank the review team led by Prof. Dato' Ts. Dr. Noor Azizi Ismail, Vice Chancellor, Universiti Malaysia Kelantan (UMK) for your unceasing support and cooperation in developing this entrepreneurship guideline that can be a good source of referral to all HLIs. I am sure that with the full dedication and enthusiasm of your team, we will overcome the obstacles that lie ahead and achieve greater success.

Wassalam.

Assalamualaikum wbt and Greetings to all

The publication of this MOHE Guide to Entrepreneurship Integrated Education (EIE) in Malaysia is very timely and in line with the aspiration of the Ministry of Higher Education (MOHE). This intends to further strengthen the students entrepreneurship agenda at the HLIs. The rapid changes in business environment and the effects of Covid-19 pandemic have necessitated all Higher Learning Institutions (HLIs) to accelerate and embrace entrepreneurship rigorously among the lecturers and students. Equipping students with an entrepreneurial spirit, having academia with the latest approaches in grooming students towards entrepreneurship, a holistic governance structure to drive the entrepreneurial agenda at the HLIs, and collaboration between institutions and industries, as well as agencies; these are key areas to facilitate the needs.

The Malaysia Education Blueprint 2015–2025 (Higher Education) plays a significant role in assisting MOHE to secure the success of the entrepreneurship in HLIs, particularly the 1st shift which focuses on producing holistic, entrepreneurial and balanced graduates. Through this shift, it is highly hoped that HLIs will be able to progress further and envision better in strengthening the aspects of entrepreneurship education. From the expected outcomes, MOHE, through the Department of Higher Education (JPT) pledges to continuously support the implementation of entrepreneurship education through its upgraded curriculum and programmes.

On behalf of MOHE, I would like to convey my appreciation to the members of this book team led by Prof. Dato' Dr. Ts. Noor Azizi Ismail, the Vice Chancellor of Universiti Malaysia Kelantan (UMK) who has made this project a success.

Hopefully, these efforts will be made progressive as to sustain the intended quality of entrepreneurship education within our Malaysian higher education system.

Wassalam.

Prof. Dato' Seri Dr. Mohamed Mustafa Bin Ishak
Director General
Department of Higher Education
Ministry of Higher Education Malaysia

Assalamualaikum wbt and Greetings to all

The Malaysian education system has indeed grown immensely over the past few decades; its evolvement is inevitable as to stay abreast, if not ahead of, global trends. Aspiring towards a developed country status needs us to embrace entrepreneurship education as part of our curriculum and extra-activities. For instance, the application of Industrial Revolution 4.0 will reshape the entrepreneurial landscape from what it is today.

The pandemic Covid-19 has resulted in high dependency on digitalisation, and this new normal has resulted in most activities done before deemed to be either obsolete or less preferred now. Preparing Malaysian graduates to thrive into this complex and ever-changing future requires fundamental transformation of how the higher education system and Higher Learning Institution (HLIs) are currently operating.

This MOHE Guide To EIE provides a general role for HLIs to develop a robust and relevant entrepreneurship programme and activities for their students.

On this occasion, I would like to express my deepest appreciation to the Minister of Higher Education, Secretary General, and the Director General of Higher Education Department for entrusting Universiti Malaysia Kelantan (UMK) with this *amanah*. Utmost acknowledgement to various stakeholders including the goverment agencies, industries, entrepreneurs, Malaysian HLIs, NGOs, lecturers and student's representatives who have contributed to this book. My humblest gratitude to all the committee members including the representatives from Universiti Utara Malaysia (UUM) and Universiti Teknologi MARA (UiTM) for their indispensable contributions towards the success of this book.

Wassalam.

Prof. Dato' Ts. Dr. Noor Azizi Bin Ismail
Chairman
Special Committee
University Entrepreneurship Curriculum in Malaysia

EXECUTIVE SUMMARY

Entrepreneurship education has becoming one of the prime agenda by the Government to spur the human capital development and the economic growth of the country. The higher education industry is mandated to ensure its academic programmes and curriculums are relevant to the current and future economic growth. The direction to establish and practice innovative entrepreneurship education supports the Government's vision to create Malaysia as an entrepreneurial nation by 2030 (National Entrepreneurship Policy (NEP), 2030). Thus, developing and performing the right entrepreneurship education and ecosystem are vital to ensure the tertiary education industry is producing students with the right knowledge and skills, mind-set, attitude and behaviour to warrant them (students) to be resilient to the changing business environment.

This MOHE Guide To Entrepreneurship Integrated Education (EIE) serves as referral and guidelines for all HLIs in Malaysia to drive the entrepreneurship programmes and activities in accordance to the aspiration of the Ministry of Higher Education (MOHE) to produce holistic, entrepreneurial and balanced graduates (Malaysia Education Blueprint 2015–2025 (Higher Education).

This EIE guide is developed based on engagement with various stakeholders including ministries, government agencies, private sectors, NGOs, entrepreneurs, industrialists, HLIs, educators and students' representatives. In addition literature search, review on related entrepreneurship policy in Malaysia, and benchmarking on current entrepreneruship education practices among the Malaysian HLIs and the top world entrepreneurial universities were conducted.

The present policies have generally highlighted the importance of entrepreneurship in education the lower to higher tertiary levels. The vision of the existing policies i.e: NEP 2030, DPK 2010, EAP 2016-2020 have clearly outlined the general strategy and mechanisms for related sectors including the higher education sector in promulgating entrepreneurship education towards nurturing entrepreneurs in the country. However, the mechanism of how to produce the right curriculum of entrepreneurship education is a challenge domain. Based on the literature review and engagements with various stakeholders, this guide is established as general principles or general rules for HLIs to design their respective entrepreneurship education programme or activities as comprehensive and effective as possible.

Four (4) guiding principles to realise the EIE are being outlined:

1. Link curricular to real business world
2. Problem-based & experiential learning
3. Technology-infused curricular
4. HLIs-industry-community linkages

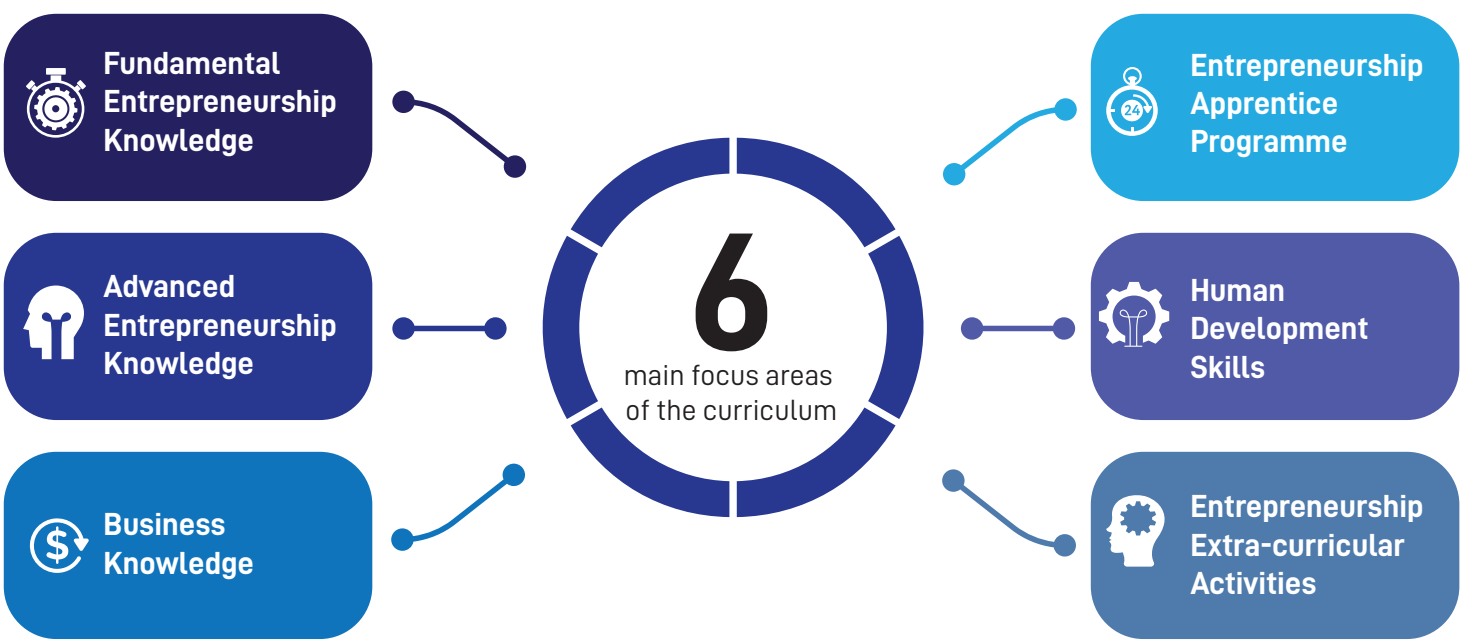
In manifesting the MOHE's vision to have an integrated curriculum, an inclusive entrepreneurship ecosystem (IEE) comprises four (4) key drivers which are **Staff Engagement, Students Engagement, University Engagement, and HLIs-Industry-Community Engagement,** with five (5) strategic objectives and 33 strategic initiatives have been outlined in this book as delibrated in page 55.

The IEE is expected to govern the development of the entrepreneurship integrated curriculum (EIC). The key elements in the EIC must embrace contemporary and market driven courses, innovative teaching and learning, quality assessment indicators, and competent faculty members.

In view of the vibrant business and entrepreneurship landscape, and the present achievement of the entrepreneurial graduates, **six (6) main focus areas** of the curriculum which are the Fundamental Entrepreneurship Knowledge, Advanced Entrepreneurship Knowledge, Business Knowledge, Entrepreneurship Apprentice Programme, Human Development Skills and Entrepreneurship Extra-Curricular Activities have been detailed to ensure the EIE is well-designed and relevant for the future entrepreneurship industry trends as described in page 74.

In sum, **the purpose** of MOHE Guide To EIE is to be refered by HLIs:

- To develop an inclusive entrepreneurship ecosystem that outlines the roles of HLIs, students, educators, industries and communities.
- To establish and/or to enhance the appropriate entrepreneurship governance system for effective performance monitoring and reporting.
- To infuse the right entrepreneurship education components into the academic programmes and student entrepreneurship development activities.
- To establish the appropriate assessment tools to measure the outcomes, effectiveness and sustainability of entrepreneurship agenda at the HLIs level.



Vision

To make Malaysia inclusively entrepreneurial and innovative country.

Mission

- To realise the dream of one-student-one-thriving-enterprise at graduation by installing entrepreneurship values.
- To ascribe entrepreneurship integrated education via latest knowledge and technology real.
- To promote holistic entrepreneurship ecosystem.

EIE Goals

GOAL 1

To increase the number of student entrepreneurs (which is referring to students who are establishing and operating their businesses while on campus).

GOAL 2

To continuously increase the number of graduate entrepreneurs (which is referring to students who are able to establish their businesses within six (6) months upon graduation).

GOAL 3

To increase the number of business start-ups or enterprises established by students and business case studies.

EIE Objectives

To achive the EIE goals, seven (7) specific objectives are outlined:

- Developing and strengthening an inclusive HLIs entrepreneurship ecosystem to reviving entrepreneurship education and invigorating students motivation on entrepreneurship.
- Strengthening entrepreneurship integrated curriculum by infusing technology and innovation-based, and linking curricular to real business world.
- Strengthening teaching and learning approach through problem-based and experiential learnings with appropriate indicators of assessment.
- Strengthening academic leaders and educators competencies through upskilling and reskilling process on knowledge development, mindset change, new technologies augmentation, innovation and business strategies.
- Accelerating the growth of HLIs entrepreneurship research and innovation to drive commercialisation activities and establishment of start-ups by students.
- Strengthening students' cooperatives and social enterprises in the market.
- Enhancing HLIs–industry–community collaborative projects at both national and international levels.

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01

OVERVIEW

Entrepreneurship is a process of identifying, recognising and exploiting opportunities. Entrepreneurial and innovativeness have now become vital components within the Malaysian higher education system. HLIs in the country are expected to redesign the educational system to reflect entrepreneurial education in trying to position itself in the dynamism and new challenges of global higher education. With the main objective to enhance graduate employability, competitiveness at the workplace and global citizenship, entrepreneurship is recognised as the way forward in the creation of future human capital with desired mindset, providing creative and innovative solutions for nation building. Graduates are expected to be job creators and not job seekers. The Malaysian HLIs faced numerous challenges which are rooted from the poor understanding on the concept of entrepreneurship, although the Ministry of Higher Education (MOHE) has developed the policy on the development of entrepreneurship education.

Within the Malaysian context, the characteristics of an entrepreneurial institution include effective governance system with the ability to make decisions and be responsible with all the decisions made, agent for socio-economic and regional development, high flexibility using the available resources within the parameter of cost and profit, campus community with entrepreneurial thinking, high quality transformational leadership and the ability of the HLIs to diversify its income, creating endowment fund, strong industrial linkages and strong campus business ecosystem. Besides, an entrepreneurial institution uses creative and innovative teaching and learning processes offering unique and multidisciplinary programmes for the creation of businesses and wealth.

STUDENT ENTREPRENEURS (SE)

Students who have established businesses while studying.

GRADUATE ENTREPRENEURS (GE)

Students who become entrepreneurs upon graduation.

Entrepreneurship in general, is perceived solely as undertaking businesses. However, entrepreneurship in a real sense, is a process of creating a new generation of human capital with a set of desired mindset, values and qualities where creative and innovative approaches hinge on transformational leadership to value add the governance system, societal networking for national and regional development, professional development and wealth creation. Thus, this holistic definition will lead to the creation of graduates who are highly adaptable, flexible and relevant. In ensuring the success of entrepreneurship, the prerequisites for all HLIs include the inculcation of the entrepreneurship culture, the implementation of entrepreneurship education, translation of applied research, developing innovations and income generation, ensuring an effective governance system, strengthening social entrepreneurship and industrial collaboration, and strengthening leadership.

Therefore, the major challenge is to develop the entrepreneurial curriculum and the delivery systems, including the creation of competent entrepreneurial educators, the provision of appropriate infrastructures and ecosystem. The ultimate outcome expected to be the creation of an inclusive entrepreneurial ecosystem and culture, development of an integrated curriculum of entrepreneurship, and inevitably to support the aspiration of the government as stated in the Malaysia Education Blueprint 2015-2025 (Higher Education) to produce graduates who are holistic and balanced with entrepreneurial attributes.

ASPIRATIONS

- **To develop an entrepreneurial ecosystem in Malaysia that will enhance the country's competitiveness in the global economy mindset increasing competition and challenges emerging from Industry Revolution 4.0 as well as creating an entrepreneurial culture in the Malaysian society.**
  Dasar Keusahawanan Negara, 2030

- **To produce holistic, entrepreneurial and balanced graduates.**
  Malaysia Education Blueprint 2015–2025 (Higher Education)

02

ENTREPRENEURSHIP EDUCATION LANDSCAPE

DASAR PEMBANGUNAN KEUSAHAWANAN (DPK) 2010

Entrepreneurial Development Policy

MOHE strongly advocates the concept of entrepreneurship to be implemented at the public universities. In 2010, MOHE has established the *Dasar Pembangunan Keusahawanan 2010 (DPK 2010)* to serve as guidelines for HLIs to nurture entrepeneurship culture within each institution with three (3) main components and six (6) initiatives.

1. Entrepreneurial awareness refers to the understanding of the importance of entrepreneurship, the know how to implement and the concept of team working. The awareness programmes are targeted to all campus community.

2. Entrepreneurial culture refers to the act of knowing how to appreciate, ensuring success, looking for new opportunities, seeing problems as opportunities, celebrating success/achievement, and differentiating attributes among the citizens of the university. The entrepreneurial culture is seen as a holistic component with a collective decision in achieving the vision and mission of the university.

3. Strengthening the components refers to the implementation of the entrepreneurial activities, followed by continuous improvement, consistent and sustainable. The university must diversify the strategies/approaches besides ensuring that all stakeholders participate in the activities.

6 INITIATIVES OF DPK 2010

The objective of the DPK 2010 was to enhance the development of entrepreneurship in a holistic manner, in the creation of quality human capital with critical thinking skills and entrepreneurial attributes. At the same time, the university hopes to produce entrepreneurs which will be the catalyst for the transformation of the national economy to a nation with high income.

Entrepreneurial activities will be the forces that will enhance innovation, creativity and competitiveness. Based on that notion, entrepreneurship has become a national agenda on the development of the commercial community and industrial; involvement of entrepreneurs in economic development. The target groups in the agenda are the students, graduates, youth and women. However, for HLIs, the focus is on the students and graduates.

- Establishment of entrepreneurial centres at HLIs.
- Implementation of the entrepreneurship education which is well-planned and holistic.
- Planning and execution of programmes for the development and strengthening of entrepreneurship.
- Developing effective measurement mechanisms for determining the impact and outcome of entrepreneurial activities.
- Providing conducive environment and ecosystem which will allow entrepreneurship to be carried out effectively.
- Providing continuous training and staff professional development to increase the number of competent entrepreneurial educators.

PELAN STRATEGIK KEUSAHAWANAN IPT 2013-2015

Strategic Plan on Entrepreneurship Development in Higher Education

The DPK 2010 was further improved and enhanced within the period of 2013 – 2015 known as *Pelan Strategik Keusahawanan IPT 2013-2015* with the introduction of additional strategies as listed below:

i. Consolidation of the role of entrepreneurship centers at universities and enhancement of the centres delivery system.

ii. Embedding the values and attributes in the Teaching & Learning cutting across disciplines and also increasing the practical elements in the teaching of entrepreneurship.

iii. Participation of industries in teaching & learning.

iv. Encouraging and providing the platforms for active involvement of students in entrepreneurship programmes.

v. Widening the support system for student businesses must also be considered, in the advisory, financial and physical support.

vi. Prioritising intervention programmes and high impactful activities to support students with strong inclination towards entrepreneurship.

vii. Enhancing social entrepreneurship based on businesses which benefits the industries and communities.

viii. Increasing the teaching workforce in entrepreneurship by recruiting academics who are creative and innovative.

ix. Overcoming the gap between the theoretical knowledge and practical aspects in entrepreneurship among teachers. This is to provide sufficient practical experiences in the teaching and learning of entrepreneurship.

x. Enhancing the skills and the competencies of entrepreneurship educators through continuous training and professional development or industrial attachment programmes.

xi. Installing strong commitment of the university top management in strengthening entrepreneurship ecosystem.

xii. Developing the instrument and key performance indicators to measure the effectiveness and impact of the entrepreneurship programmes.

PELAN TINDAKAN KEUSAHAWANAN 2016-2020
Entrepreneurship Action Plan (EAP)

Accompanying the Malaysia Education Blueprint 2015–2025 (Higher Education), MOHE has once again improved the *Pelan Strategik Keusahawanan 2013-2015* by introducing the *Pelan Tindakan Keusahawanan 2016 – 2020* also known as Entrepreneurship Action Plan (EAP).

Shift 1 in the Malaysia Education Blueprint 2015-2025 (Higher Education), which is to create holistic, entrepreneurial and balanced graduates is the foundation in developing the new action plans in 2016. The EAP comprises of two (2) strategies - Strategy A (Curriculum Development) and Strategy B (Strengthening the Learning Support System).

STRATEGY A
CURRICULUM DEVELOPMENT

STRATEGY B
STRENGTHENING THE LEARNING SUPPORT SYSTEM

INITIATIVE 1
High Impact Educational Practices by embedding entrepreneurship elements across disciplines.
The measurement for the success is the percentage of students getting exposure in entrepreneurship.

INITIATIVE 2
Job Creator Framework and the measurement for success is based on percentage of the creation of graduate entrepreneurs.

INITIATIVE 3
University ecosystem which will support the student entrepreneurship and the measurement: will be based on the percentage of students involved in business on campus.

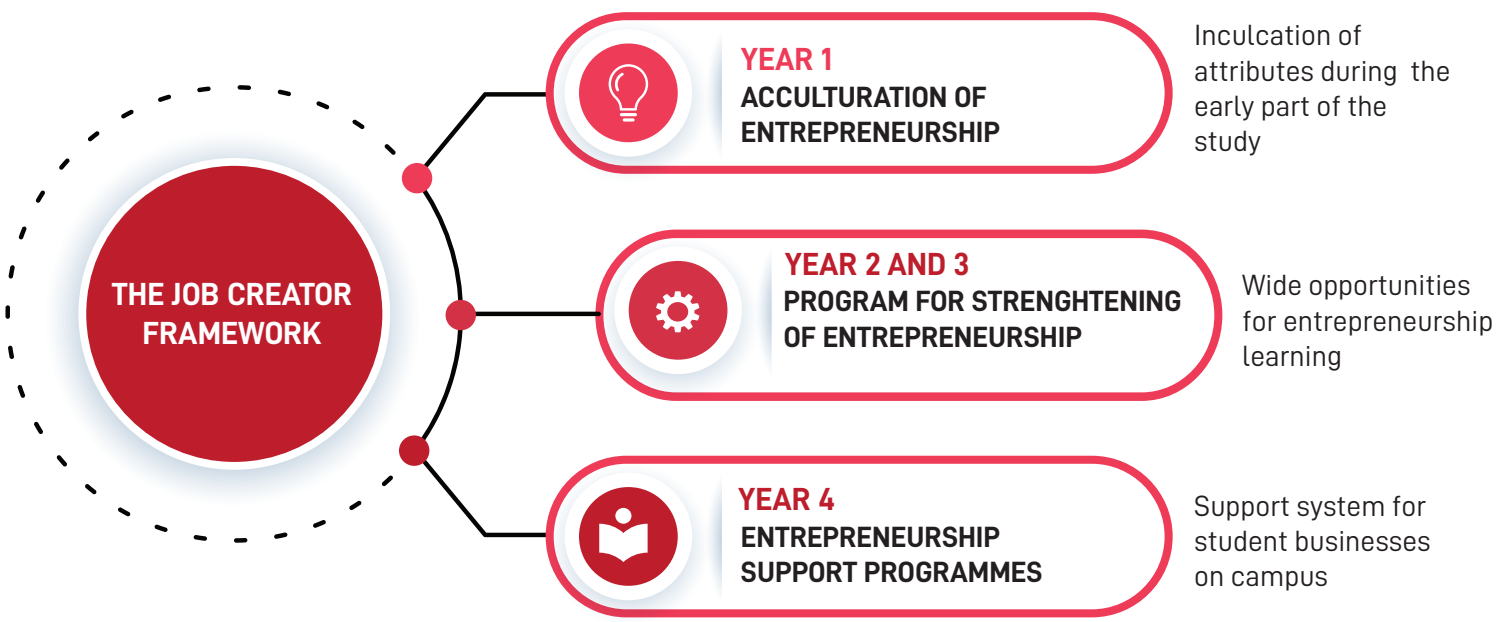
INITIATIVE 4
Enhancing competency of educators and the measurement will be based on the number of educators with expertise in entrepreneurship.

Source: *Pelan Tindakan Keusahawanan 2016-2020*

One of the important outcomes in the new strategic action plan is the establishment of the **Job Creator Framework.**

The framework illustrates the methodologies in ensuring graduates to acquire sufficient entrepreneurial education and training which will transform them into job creators instead of being job seekers.

In addition, the revise EAP 2021-2025 has affirmed the entrepreneurship agenda with three (3) strategic thrusts: **Synergistic Entrepreneurial Ecosystem, Impactful Collaborations, and Innovation and Technology in Entrepreneurship**. Therefore, this MOHE Guide To EIE embraces the three (3) affirmation strategies to be implemented by the HLIs in Malaysia.



Source: *Pelan Tindakan Keusahawanan 2016-2020*

MINISTRY OF ENTREPRENEUR DEVELOPMENT AND COOPERATIVES

NEP 2030

National Entrepreneurship Policy

Malaysia: An Outstanding Entrepreneurial Nation 2030

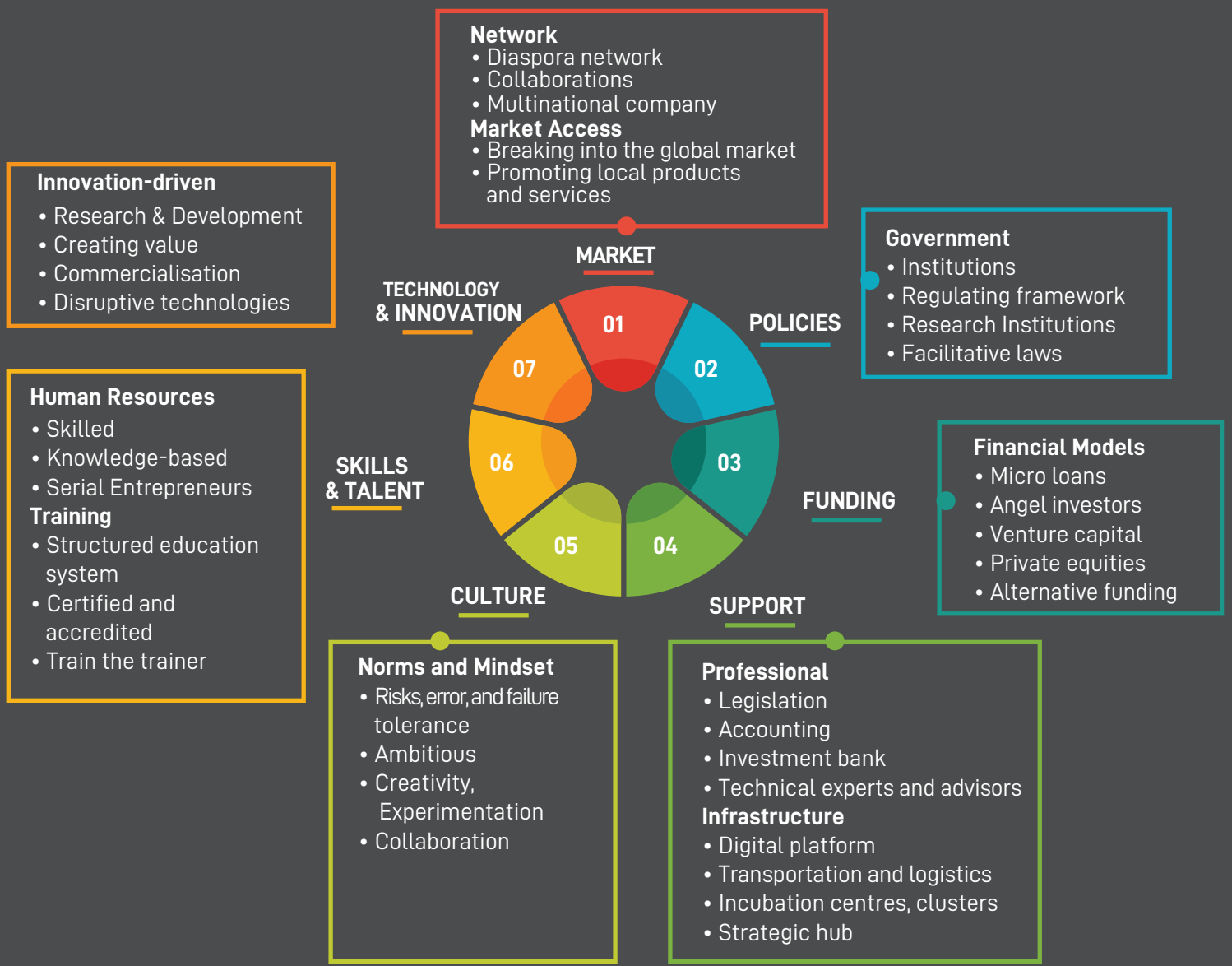
NEP 2030 is intended to be the nucleus and catalyst to drive a culture of entrepreneurship in the country, with the ultimate aim to create a holistic and conducive entrepreneurial ecosystem to support an inclusive, balanced and sustainable socio-economic agenda. The goal is to increase the number of qualified, viable and resilient entrepreneurs as well as to enhance the capabilities of local entrepreneurs, particularly in the SME sector, in line with the government's shared prosperity concept. DKN 2030 has set five (5) main objectives, Entrepreneurship Ecosystem Framework and six (6) strategic thrusts, to spur the country entrepreneurship agenda.

In 2019, the Ministry of Entrepreneurship Development (MED) presently known as the Ministry of Entrepreneur Development and Cooperative (MEDAC) has launched the NEP 2030 which encompasses the long term strategy on the direction of national entrepreneurship. 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 Revolution 4.0 (IR4.0) as well as creating an entrepreneurial culture among the Malaysian society.

The NEP 2030 sets out five (5) objectives:

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.

ENTREPRENEURSHIP ECOSYSTEM



Source: National Entrepreneurship Policy 2030 (page 41)

NEP 2030 Six Strategic Thrusts

To achieve the desired objectives, NEP 2030 highlights six (6) strategic thrusts with the objective of transforming the Malaysian economy into one that is sustainable, inclusive, progressive and driven by knowledge and innovation. The six strategic thrusts are:

1 Fostering an Entrepreneurship Culture Across All Segments of Malaysian Society

Making creativity, innovation, taking calculated risks and acting upon opportunities as the foundation of entrepreneurship culture.

2 Optimising the Regulatory Environment and Access to Funding

Agile and facilitative governance, regulations and funding to facilitate entrepreneurial ventures

3 Stimulating Holistic and Integrated Entrepreneurship Development

Improving the country's socioeconomic status by allowing all segments of society access to entrepreneurship

4 Accelerating Economic Growth Through Innovation-Driven Enterprise

By increasing collaborations between entrepreneurs, innovators and researchers in forming, developing and expanding enterprises.

5 Strenghtening Entrepreneurial Capabilities and Performance of MSMEs

By elevating MSMEs to higher level with initiatives that add value and innovation of processes, products and services.

6 Internationalising High Growth Enterprises

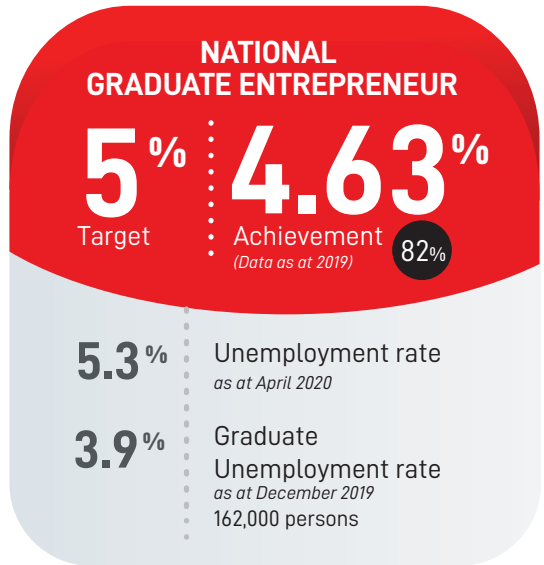
Through strategic cooperation networks between local and international entrepreneurs and through global standards and quality compliance.

Source: Source: National Entrepreneurship Policy 2030 (page 42)

GRADUATE ENTREPRENEURS AND STUDENT ENTREPRENEURS BASELINE

Recognising the importance of entrepreneurship education in promoting entrepreneurship development and the economy, MOHE has taken the initiative by making entrepreneurship subjects compulsory to all students at the nation's public universities. Between 2016 and 2019, Malaysia has witnessed the positive outcomes resulting from the entrepreneurship programmes. Nonetheless, the outcomes can further be strengthened by introducing an entrepreneurship integrated curriculum that embraces present and future technology and linking to the real business world in the curriculum design, teaching and learning, and improving the entrepreneurship assessment indicators.

CURRENT SCENARIO



Source: DOSM, May 2020

Key Performance Indicator	2016		2017		2018		2019		2020
	TARGET	ACHIEVEMENT	TARGET	ACHIEVEMENT	TARGET	ACHIEVEMENT	TARGET	ACHIEVEMENT	TARGET
Students Get Entrepreneurship Exposure	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 Entrepreneurs	3%	3% / 9,998	6%	5% / 19,024	9%	7% / 30,888	10%	10.20% / 49,983	15%
Lecturers Possessing Entrepreneurial Expertise	300	2,206	600	1,260	900	1,988	1,200	2,079	1,500

Source: *Unit Keusahawanan, Bahagian Dasar, Kementerian Pengajian Tinggi (KPT), 2019*

BEST PRACTICES

Benchmarking is an important component of self-evaluation for higher education practices for a productive process that provides measurement for an on-going improvement. It has been identified as the best technique to provide information and assessment for the activities that has been carried out by higher education institutions. Using benchmarking to measure higher education practices provides multiple benefits including overcoming resistance for change, providing a structure for external evaluation and sharing information. A review from various sources of benchmarking that have been used previously by scholars has identified several benchmarking criteria that used to differentiate the entrepreneurial education best practices in top entrepreneurial universities in the United States, Singapore and Malaysia. In addition, the review of the existing national policy papers and literature reviews on eminent scholars, engagement with stakeholders was conducted in the process of establishing this EIE guide.

The benchmarking was conducted among 21 Malaysian Public HLIs, 15 top world entrepreneurial Universities (TWEU) and two (2) universities in Asia. Five (5) focus elements in entrepreneurial education were established to assess the practices among the Malaysian HLIs and the world's best entrepreneurial universities. Based on the benchmarking, eight (8) criteria have been identified and put forward as best practices for the Malaysian HLIs to adopt which are delibrated in page 85.

5 FOCUS ELEMENTS IN ENTREPRENEURIAL EDUCATION

1. **ENTREPRENEURSHIP INTEGRATED CURRICULUM**
An integrated study that links the real business and technologies into curricular. Also, focusing on teaching "about" entrepreneurship by hiring lecturers with business experience.

2. **STUDENT ENTREPRENEURIAL ACTIVITIES**
Focusing on student entrepreneurial activities that can help students to get a real business experience. This includes pitching, doing business and selling experience, business partnerships and global linkages.

3. **STUDENT ENTREPRENEURSHIP DEVELOPMENT PROGRAMME**
Focusing on entrepreneurial skills through continual entrepreneurship programmes such as business coaching, and apprenticeship programmes in managing the business, managing risk, navigating uncertainty and exploring new opportunities.

4. **ENTREPRENEURSHIP ECOSYSTEM**
Focusing on the entrepreneurial ecosystem that can facilitate the development of entrepreneurship within the institution. This includes governance structure, business incubators, innovation labs and technologies.

5. **ENTREPRENEURSHIP ASSESSMENTS**
Focusing on entrepreneurial assessments such as number of business, start-ups and industry research to see the level of entrepreneurship. However, the acqusition and understanding on what entrepreneurship is all about and ability to change students mindset must be measured.

MALAYSIAN ENTREPRENEURSHIP EDUCATION PRACTICES

The survey resulting from the 20 public universities, and the Department of Polytechnics and College Community Education (DPCEE) in Malaysia are presented according to the five (5) focus elements in entrepreneurial education as follows:

1 ENTREPRENEURSHIP INTEGRATED CURRICULUM

- Majority of the HLIs offer two (2) subjects of entrepreneurship.
- Two (2) HLIs offer between 3-4 subjects of entrepreneurship.
- The subjects offered are focused on basic entrepreneurship.

2 STUDENT ENTREPRENEURIAL ACTIVITIES

- Majority of the HLIs have organised between 10-20 programmes / activities per year.
- Two (2) HLIs have organised more than 100 activities per year.

3 STUDENT ENTREPRENEURSHIP DEVELOPMENT PROGRAMME

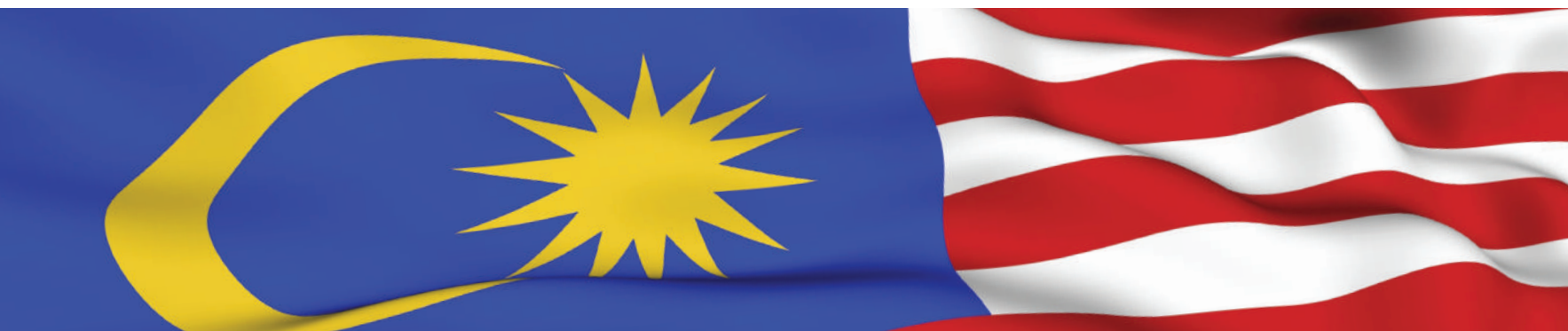
- 16 HLIs provide entrepreneurship mentoring and coaching programmes.
- All HLIs provide entrepreneurship facilities i.e. kiosks, shop lots and mall.
- Nine (9) HLIs provide seed fund or soft loans for students to commence their businesses.

4 ENTREPRENEURSHIP ECOSYSTEM

- Eight (8) HLIs have one incubator and three (3) HLIs have two (2) incubators such as new product development labs, retail labs, and business labs.
- Two (2) HLIs have between 36 and 40 incubators respectively.
- All HLIs have established good HLIs-industry linkages.
- The governance structure and reporting system are diversed among the HLIs.

5 ENTREPRENEURIAL ASSESSMENTS

- All HLIs have adopted the four (4) KPIs as stated in the *Pelan Tindakan Keusahawanan 2015-2020* .
- Majority of the HLIs have ensured all students are being exposed to basic entrepreneurship knowledge.
- However, for student entrepreneurs the average percentage produced by the HLIs is 10.2% while for graduate entrepreneurs is at 4.63% (as at 2019) which is slightly lower than the national target of 5%.



WORLD ENTREPRENEURSHIP EDUCATION PRACTICES

Universities and other HLIs are currently facing a lot of unprecedented challenges in the definition of its purpose, role, organisation and scope in society and the economy. The emergence of new technologies, integrated economies have all thrown new demands on the need to have an integrated HLIs system across the world especially in entrepreneurship education. It is important to have world class entrepreneurial practices to create more student entrepreneurs and graduate entrepreneurs. The main focus should be in developing entrepreneurial ecosystem to support the entrepreneurial activities. The number of universities selected for review was based on three (3) entrepreneurship standards and accreditation bodies. They are the Princeton Review (Princeton 2020), the US News Ranking (USNews 2020), and the Accreditation Council for Entrepreneurship and Engaged Universities (ACEEU, 2020). The TWEU stated below are based on the ranking order.

TOP BEST COLLEGES FOR ENTREPRENEURSHIP

PRINCETON REVIEW FOR 2020

UNDERGRADUATE

- UNIVERSITY OF HOUSTON
- BABSON COLLEGE
- BRIGHAM YOUNG UNIVERSITY (PRIVATE UNIVERSITY)
- UNIVERSITY OF MICHIGAN
- BAYLOR UNIVERSITY

GRADUATE

- WILLIAM MARSH RICE UNIVERSITY
- UNIVERSITY OF CHICAGO
- NORTHWESTERN UNIVERSITY
- BABSON COLLEGE
- UNIVERSITY OF MICHIGAN

US NEWS RANGKING FOR 2020

UNDERGRADUATE

- STANFORD UNIVERSITY
- BABSON COLLEGE
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY
- HARVARD UNIVERSITY
- UNIVERSITY OF CALIFORNIA
- UNIVERSITY OF PENNSYLVANIA

GRADUATE

- STANFORD UNIVERSITY
- UNIVERSITY OF PENNSYLVANIA
- NORTHWESTERN UNIVERSITY
- UNIVERSITY OF CHICAGO

ACCREDITATION COUNCIL FOR ENTREPRENEURIAL AND ENGAGED UNIVERSITIES (ACEEU)

ACEEU based in Germany is currently the only globally-operating quality assurance body that focuses on acknowledging the engagement and entrepreneurship practices in universities around the globe. It provides accreditation to the entrepreneurial universities worldwide to foster cultural change, organisational development and the recognition of excellence in entrepreneurship. ACEEU was established in 2017 and founded within the University Industry Innovation Network (UIIN) and its headquarters is in Munster, Germany. As at 2020, ACEEU has 35 number of council members and five (5) universities around the world that have been accredited by this body.

ACEEU'S Accredited Universities

- University of Tartu, Estonia
- Chalmers University of Technology, Sweden
- Management of Science University, Malaysia
- Universidad Ean, Colombia
- The University of Adelaide, Australia

The world leading entrepreneurial universities

can be described to perform outstanding entrepreneurial practices based on the following five (5) areas:

1. Entrepreneurship Integrated Curriculum

World-class entrepreneurial universities always thrive in an environment that can foster competitiveness, critical thinking, innovation and creativity. The university should be more agile and open for new ideas and unique approaches. In most of the universities such as University of Houston, Babson College, William Marsh Rice University and Stanford University, the entrepreneurship subjects are integrated with the real business which enable students to focus on real business cases and hands-on activities. This allows student to get a real exposure about the business and understand the actual entrepreneurial learning process. For instance, in Babson College, students are required to take a year long foundation courses in management and entrepreneurship, and managing the real venture.

2. Student Entrepreneurship Activites

Entrepreneurship is more about continual learning and interacting with the environment and for that these leading entrepreneurial universities, have offered students development programmes such as business coaching and Entrepreneurship Apprentice for student entrepreneurs to identify their strengths, weaknesses and develop their entrepreneurship skills. For example, University of Houston has created a three (3) days start-up programme which helps students to grow and scale up their business and develop their potential as leaders. Business ideation, pitching and coaching by entrepreneurs and/or industrialists are constantly practices among these universities.

3. Focus on Case Studies of Top Companies

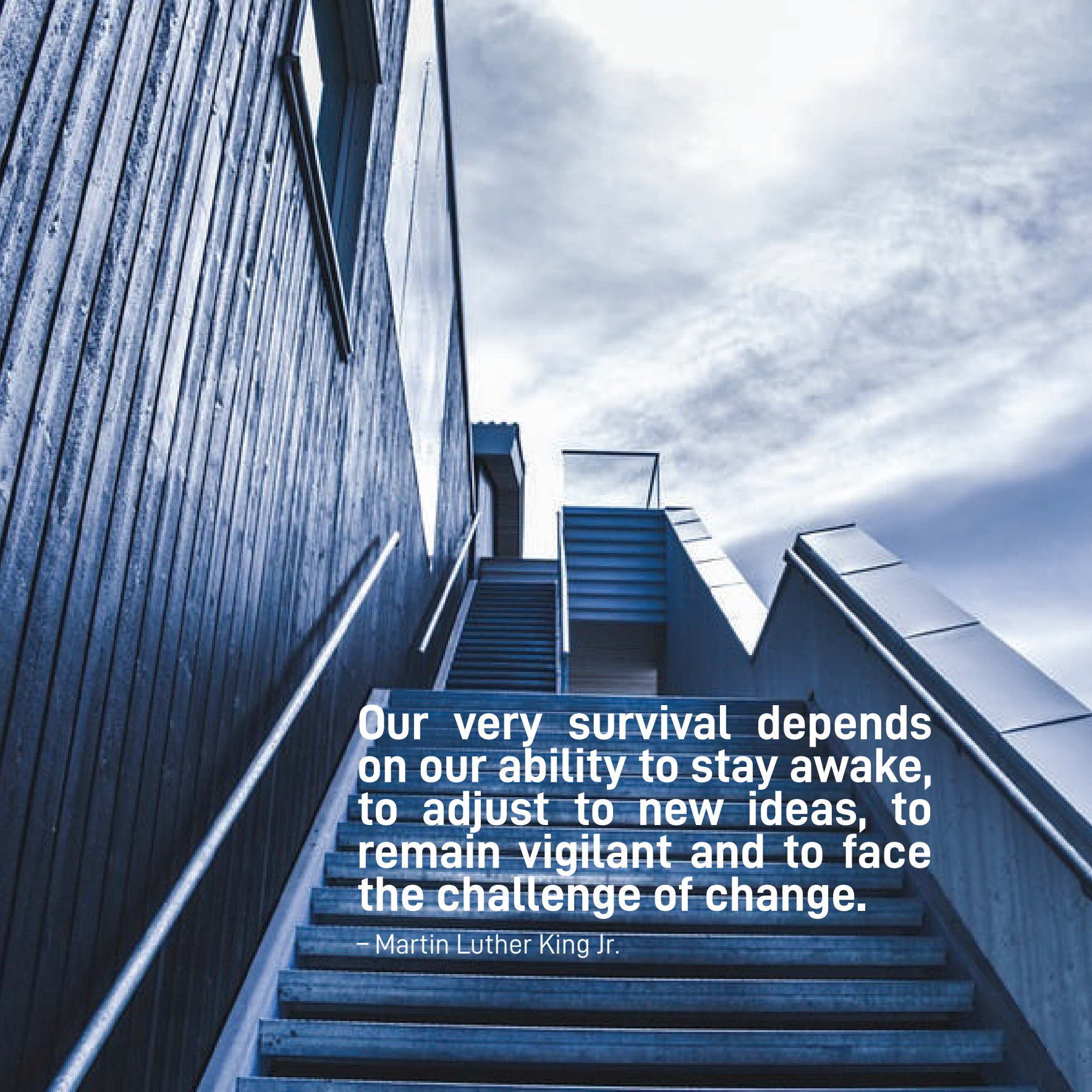
Many entrepreneurial students are more inductive and deductive which means they prefer to learn better from real examples than basic principles. Universities such as Babson College and William Marsh Rice University have been long used case studies as an effective classroom technique to their students. It is a direct approach to foster the student's skills to analytically evaluate the information. Using real cases from industries's scenario will help them to understand the concept and method used by the companies hence, support students' motivation to venture into business. Experiental learning is the key for students to enhance their entrepreneurship knowledge and skills.

4. Entrepreneurial Ecosystem

The review from these leading entrepreneurial universities shows they have created world-class facilities to support the entrepreneurship development within their universities. This includes having leadership and entrepreneurship advancement institute, incubators and innovation centres to support business start-ups and student entreprises development. Teaching factory was also found to be significant. On the other hand, community-wide forums such as energy and clean technology venture capital conferences where students, start-ups, investors, researchers and others connect and learn to spur the innovation ecosystem. In term of governance structure, entrepreneurship agenda is commonly asssociated with technology transfer and oversees by a Director of Technology Transfer or a Centre for Entrepreneurship that reports to the President of the university.

5. Entrepreneurial Assessment

These leading universities have given priority in producing high-impact entrepreneurs by developing unique assessments to analyse the success student of companies. Universities such as Stanford University and Harvard University have prioritised number of case studies and number of start-ups as main criteria to assess the student entrepreneurial performance. The evaluation commence from understanding the entrepreneurship knowledge, thinking and acting like entrepreneurs. If you are starting a new enterprise or making something happen inside the company, the entrepreneurial mindset is a neccesary part of any successful person's toolkit.


Our very survival depends on our ability to stay awake, to adjust to new ideas, to remain vigilant and to face the challenge of change.
– Martin Luther King Jr.

03

ISSUES AND CHALLENGES

Entrepreneurship requires one to be very dynamic, agile and resilient to stay in the environment. Hence, latest entrepreneurship education is a pathway to grow one's knowledge, mindset, attitudes and behaviour to achieve entrepreneurship success. HLIs must ensure educators and students to be exposed with a balance of knowledge, spiritual (ehsan) and ethics to make them resilient and flexible to the changes and challenges in the environment. Nine (9) critical issues and challenges confronting the entrepreneurship diaspora stem from the role of HLIs as knowledge provider to leadership and governance.

Nine (9) issues and challenges are:

1. Teaching and Learning Approach
2. Curriculum Content
3. Growth Mindset
4. Business Direction
5. Research and Commercialisation
6. Business Initiatives
7. Professional Entrepreneurship Experts
8. Leadership and Governance
9. Quadruple Helix

1. Teaching and Learning Approach

Teaching the Generation Y and the millennials are challenging because of different characteristics among the Generation X, Y and baby boomers. The former generation forces the traditional means of teaching and learning to be changed. Teaching style that does not promote dynamism will demotivate these Generations' (X and Y) learning processes. The ability to teach using digital platforms is still not adequate to stimulate dynamic teaching and learning processes. Furthermore, the learning process cannot confine only in the classroom any more or one-way communication at digital platforms. The short span of learning among the new generation needs an innovative entrepreneurship curriculum that fulfill the need for the new generation. Unfortunately, not all lecturers have fully utilised online courses with digital ready content and limited engagement with subject matter experts at online platforms. Problem-based learning and personalised learning must be affirmed to stimulate the thinking process among students.

2. Curriculum Content

Curriculum content is important to shape the entrepreneurial identity (or entrepreneurial DNA) of student entrepreneurs and graduate entrepreneurs to ensure success in their new venture creations or start-ups. However, present knowledge shared through entrepreneurship content is relatively too general and basic. The entrepreneurship syllabus is delivered in a short time that leads to surface knowledge. Furthermore, entrepreneurship contents that are being inculcated are 'governance' focus rather than 'inspiring' focus. Hence, entrepreneurship projects that are used to nurture the entrepreneurship knowledge and skills are short-term projects and less beneficial or impactful to the students which requires a strong link to real world business and it should not be a one-off project. At the end, students are only able to develop skills in managing the business but less in designing strategies cognitively, inability to encounter complex problems, and lack of perseverance and spiritually as a true entrepreneur.

3. Growth Mindset

The success of job creator execution depends on mindset growth besides the entrepreneurship and business competencies. Therefore, the growth in mindset should be curated during a student's journey in the university. However, this kind of mindset is still lacking among the HLIs students even though the entrepreneurship culture has been infused tremendously. Furthermore, the emotion that relates to fear of failure and lack of courage still govern the students that lead to unsuccessful new venture creation at the HLIs or unable to sustain and grow their business after graduation. In addition, support from society at large such as family and friends is still lacking towards the emerging entrepreneurs. Therefore, mindset growth should be instilled across society. The interaction of a growth mindset society can enhance students' creative minds, boost their motivation and courage to solve complex problems via experiential learning or work based learning.

4. Business Direction

The new business landscape is more evolved in technology augmentation and digitalisation. AIs, IoTs, machine learning, robotics, are the current trends and tools that will shape the future industries. These changes will affect consumerism lifestyles and behaviour. This implies educators must be vigilant and adapt to the new and latest changes. Entrepreneurs have wider opportunities to serve more than 32 million people in Malaysia, more than 690 million people in the ASEAN market place and more than 7 billion world population. Thus, it requires entrepreneurs to use different approaches to capture a wider market. For example, from conventional approach and high dependency on human labour to ecommerce and automation in operations. Traditionally, the focus is more on food and beverage, and retail industry rather than in the emerging technology field. The promotion of innovative-based industries such as healthtech, Fintech, Edutech, and agrotech in the curriculum is not widely emphasised in the curriculum. Technological-innovation-based industry using latest or emerging technologies can be further explored. In addition, ensuring growth and sustainability of the ventures/enterprises is inevitable for the benefits of HLIs, country and the society.

5. Research and Commercialisation

Student innovative products should be able to be commercialised effectively through start-up or spin-off companies. However, the current entrepreneurship curriculum relatively does not promote innovation based SMEs. Therefore, the diffusion of innovation, especially technological innovation cannot be benefited to the society at large. In addition, impactful translational research is still lacking compared to fundamental research. Furthermore, lack of research funding has positioned the HLIs in difficult decisions that relate to research and development, proof of concepts activity, prototype development and bringing the product to market. Previous research has indicated that the combination skill of research and business will promote the success of the commercialisation process. This skill set will enable the innovative team to be aware of the new trend of market demand, the utilisation of ecommerce and platformatization strategy. However, the interaction and collaboration of science and technical students with business students are still lacking that hinder the emergence of start-ups.

6. Business Initiatives

Government has provided lots of initiatives to help entrepreneurs and SMEs to create, grow and sustain their businesses. However, the current entrepreneurship curriculum does not promote students' sensitivity to the current information that regards to the business initiative. For instance, most students are not interested in reading the yearly budget to grab the opportunity and initiative provided by the government to help entrepreneurs in their journey to success. Furthermore, HLIs also need to support the initiative that is provided by the government agencies or industry or promote homegrown initiative through policies that can promote new venture creation. For example, Green Lane initiative will help the student entrepreneurs to explore the opportunities, practice their knowledge and skills, solve the complex problem and taste the failure for success. Unfortunately, the government or HLIs support initiatives that can accelerate new venture creation of student entrepreneurs or graduate entrepreneurs need to be affirmed.

7. Professional Entrepreneurship Experts

The number of lecturers that are experts in entrepreneurship fields continues to rise. Those expertise streams are from formal and informal entrepreneurship knowledge and education. However, entrepreneurship professional experts that have the combination of entrepreneurship knowledge and industry experience needs to be increased. Expert entrepreneurs that have vast knowledge and experiences will be able to transfer entrepreneurship knowledge effectively because they understand and feel the real world of entrepreneurship better. Unfortunately, presently the number of lecturers with entrepreneurship education is exceeding the number of lecturers with real business world experience. This phenomenon leads to low exposure on student entrepreneurs' perspective regarding business value chain, competitive advantage through technological innovation, and globalisation through internationalisation. Therefore, the ability to guide and facilitate students based on real world experience to create new ventures is crucial enough to be either upskilling or reskilling.

8. Leadership and Governance

The entrepreneurship agenda will prosper with the support from HLIs leadership that dare to calculative risk, employ business acumen mindset, and execute an effective governance system. Good governance and policies that support the entrepreneurship ecosystem will flourish the entrepreneurship culture. Those with strong leadership capabilities will lead to transform the HLIs landscape towards the innovation driven culture that promotes students' new venture creation or start-ups. Previous research has indicated that bureaucracy and slow decision making will impede creativity and innovation. Therefore, there is a need to transform academic leaders to be more resilient, pragmatic, and futuristic to ensure the entrepreneurship culture is fostered. This remains a big challenge to have this kind of leadership.

9. Quadruple Helix

The HLIs linkages have demonstrated the segregation of HLIs, agency, industry and community collaboration. More than 60 government agencies have their own activities and agendas to support entrepreneurship development in Malaysia. Industries also demand certain capabilities and requirements in order to ensure students entrepreneurs can blend with the business situation. However, the current entrepreneurship curriculum is unable to cope with the industrial need, changes in technology, and global trend and worse still, the collaboration between HLIs, agencies, industry and community demonstrated the segregation that those institutions tend to work in silo in supporting the entrepreneurship agendas. In addition, many memorandum of understandings (MOUs) are not being utilised effectively to foster the innovative culture that can contribute to the creation of innovative based SMEs.

In sum, the policies and strategies that have been introduced by the government, the support from the industry, and the awareness on business changes landscape are not enough if the entrepreneurship curriculum remains the same. HLIs cannot deny the impact of technological innovation that derived from the Industrial Revolution 4.0 that urged the industry to change their mindset, operation system and perspectives. Therefore, there is a strong need to enhance the present entrepreneurship collaboration and to address those issues and challenges amicably in order to create impactful job creators.

Everyone can succeed
and be happy with the right
encouragement, inspiration,
and motivation.

04

CORE KNOWLEDGE AND SKILLS

Entrepreneurship Education

is increasingly emphasised in all academic programmes ranging from elementary level to postgraduate level to enhance entrepreneurial mindset. Entrepreneurship education is seen as an important element which is in tandem with what the students demand in order to obtain necessary knowledge and skills to succeed in soaring diverse and complex business environment. This can be clearly explained as core entrepreneurship knowledge and core entrepreneurship skills that are important to be instilled in our graduates.

CORE ENTREPRENEURSHIP KNOWLEDGE

Entrepreneurial knowledge is defined as an individual's appreciation of the concepts, skills and mentality expected of an entrepreneur (Jack & Anderson, 1999). According to Massad and Tucker (2009), knowledge can be acquired over time and shaped through consistently being exposed to entrepreneurial activities. The development of entrepreneurship knowledge is often associated with entrepreneurship learning. There are two distinct knowledge that complements each other in working on a business creation (Massad & Turker, 2009).

Firstly, to recognise or identify and evaluate new business opportunities. The knowledge allows entrepreneurs to identify a market or a group of people wanting a solution to a particular problem which is then solved by developing an innovative or new approach. Second, knowledge on developing a viable business models allows entrepreneurs to plan and operate the business. These two-knowledge perspectives comprehend each other and must be acquired by the entrepreneurs. Below suggests, the ten (10) pertinent indicators of core knowledge that are deemed to be important for potential entrepreneurs.

Ten (10) Core Entrepreneurship Knowledge

Core Knowledge	Description
1. Vision, Strategies, Process and Culture	Must be able to define their venture's vision, strategies, processes and culture. Must be able to align them within the workforce to deliver the objectives of the enterprise and attain bottom line results.
2. Realise their Vision	Take action to close the gap from where we are today and what to be achieved.
3. Create the Environment	Must be able to build a venture that motivates stakeholders. Emphasise on changes and continuous improvement.
4. Understand the Market	Must be able to understand the market condition and explore the potentials to exploit it to their advantage.
5. Understand the Customers	Must understand what are the customer's needs, wants and requirements. Recognise their needs and provide a solution.
6. Know your Competitors	Understand the competitors, their market positioning and activities.
7. Understand Local Cultures	Familiarise local cultures so that the business is aligned to their needs.
8. Knowledgeable in Profit & Loss	Know your money matters well to evaluate opportunity vs risk.
9. Evaluate Own Self	Understand their strength and weaknesses, decide to recruit those who can compensate it.
10. Thirst for Knowledge	Instill the thirst for learning in own self and others. Allows obtaining knowledge to solve problem creatively and push individual limits.

Source: McClelland (1987), Cooper, Bottomley and Gordon (2004), Massad & Turker (2009), Kuratko, D. F. (2020)

CORE ENTREPRENEURSHIP SKILLS

Entrepreneurs are like any other person who has a job to do thus, they need skills to get the job done effectively. The skills in this context encompass the concept of competency, proficiency, attributes and ability to manage their business venture well. In addition, skills are closely connected to knowledge, expertise, and capabilities which naturally developed and honed into skill sets. It is nurtured over a period of time through embarking in learning, improving and accomplishing specific tasks.

According to Mitchelmore and Rowley (2010) and Landström (2020), entrepreneurial competencies have been extensively studied. Twenty (20) core competency skills which are synthesised from literature are considered important and key indicators to measure entrepreneurship effectiveness.

Twenty (20)
Core Entrepreneurship Skills

Core Skills	Description
Risk Assumption	Able to tolerate ambiguous and uncertain situations. Making sound decisions during this period while being able to control own emotions.
Self-Determination	Capable of making independent decisions after understanding clearly the possibilities and responsibilities of what the decision entails.
Quest for Information	Able to search and share business information for business problem solving.
Quality of Work	Able to work intensively and tenaciously to achieve business objectives, and most importantly seeking continuous improvement.
Communication	Able to listen, ask questions, express ideas and concepts effectively.
Self-Confidence	Able to address new challenges with having confidence in their own possibilities, decisions or views.
Social Networks	Able to create and maintain a network of contacts who are deemed useful in achieving the venture's goals.
Dynamism	Able to work in changing situations, with various partnerships.
Change Management	Able to adapt to different contexts, situations, and people quickly and appropriately.
Initiative	Willing to take action, create opportunities and improve outcomes within internal resources.
Innovation	Able to produce novel, unexpected and appropriate (timely, useful) solutions to market needs.
Integrity	Able to act in accordance with what is said or considered important.
Leadership	Able to guide the action of employees in a direction by creating commitment, setting goals, and giving feedback that integrates the views of others.
Self-Control	Able to regulate own self and know their own limitations.
Result Orientation	Able to promote, guide and select behavior that drives towards goal achievement.
Social Mobility	Able to raise or lower position in the scale of economic well-being.
Negotiation	Able to control a discussion to create an environment for collaboration which emphasizes on making lasting commitments to strengthen the relationship.
Troubleshooting	Able to flexibly assume boundary situations and overcome them and ability to handle contradictions. .
Responsibility	Able to maintain consistency between actions, behaviours and words, taking responsibility for their own mistakes.
Teamwork	Able to actively participate in the achievement of a common goal, subordinating personal interests to team objectives.

Source: Sarasvanthy, 2001; Kirby, 2004; Gibb & Hannon, 2006; Shumpeter, 1934; Begley & Boyd, 1988; Pleitner, 1986; and Shapero, 1982.

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05

HLIs ENTREPRENEURIAL ECOSYSTEM

INCLUSIVE ENTREPRENEURSHIP ECOSYSTEM (IEE) FRAMEWORK

The HLI itself is an organisation that needs to be entrepreneurial driven. This statement suggested that the whole institution is the fabrication or the assemblage of entrepreneurship initiatives to ensure an inclusive ecosystem which the components are interrelated. This IEE is essential to govern the development of the Entrepreneurship Integrated Education (EIE).

The present HLIs entrepreneurial ecosystem features five (5) important components which are leadership and governance, entrepreneurial culture, incentive and reward system, vision and mission, infostructure and infrastructure to drive the entrepreneurial agenda of the respective institution.
(Refer figure 1)

The ecosystem is a collective involvement of four (4) main stakeholders which involves inclusivity of institutions and governance, staff, students and the industry/community.
(Refer figure 2)

The stakeholders need to work closely based on the strong entrepreneurial culture. Based on the concept of shared leadership, all the university communities and other stakeholders will focus on ensuring the success of the entrepreneurial agenda. One of the consequences of the entrepreneurial culture is the creation of the environment with sufficient infrastructure and infostructure which will enhance healthy and competitive entrepreneurial activities (teaching & learning, research & innovation and community services). The activities must indeed consider the holistic and innovative approaches which will ensure impactful outcomes. The whole system or university citizens which form the ecosystem (including the top management) must be involved in the entrepreneurial activities with high commitment based on the vision and mission of the HLIs. Incentives and rewards should also be promoted to encourage staff and faculties to strive for entrepreneurship impact.

Thus, highly interrelated strategies will indicate a strong team working towards achieving excellence. Industrial and community participation are also extremely essential since the industry are equally responsible in determining the quality entrepreneurship education, graduate employability and financial sustainability of the HLIs.

The essence of inclusivity lies on the strong engagement by the four (4) stakeholders i.e: staff engagement, students engagement, community and industrial engagement, and HLIs engagement which is presented in figure 2.

HLIs ENTREPRENEURIAL ECOSYSTEM

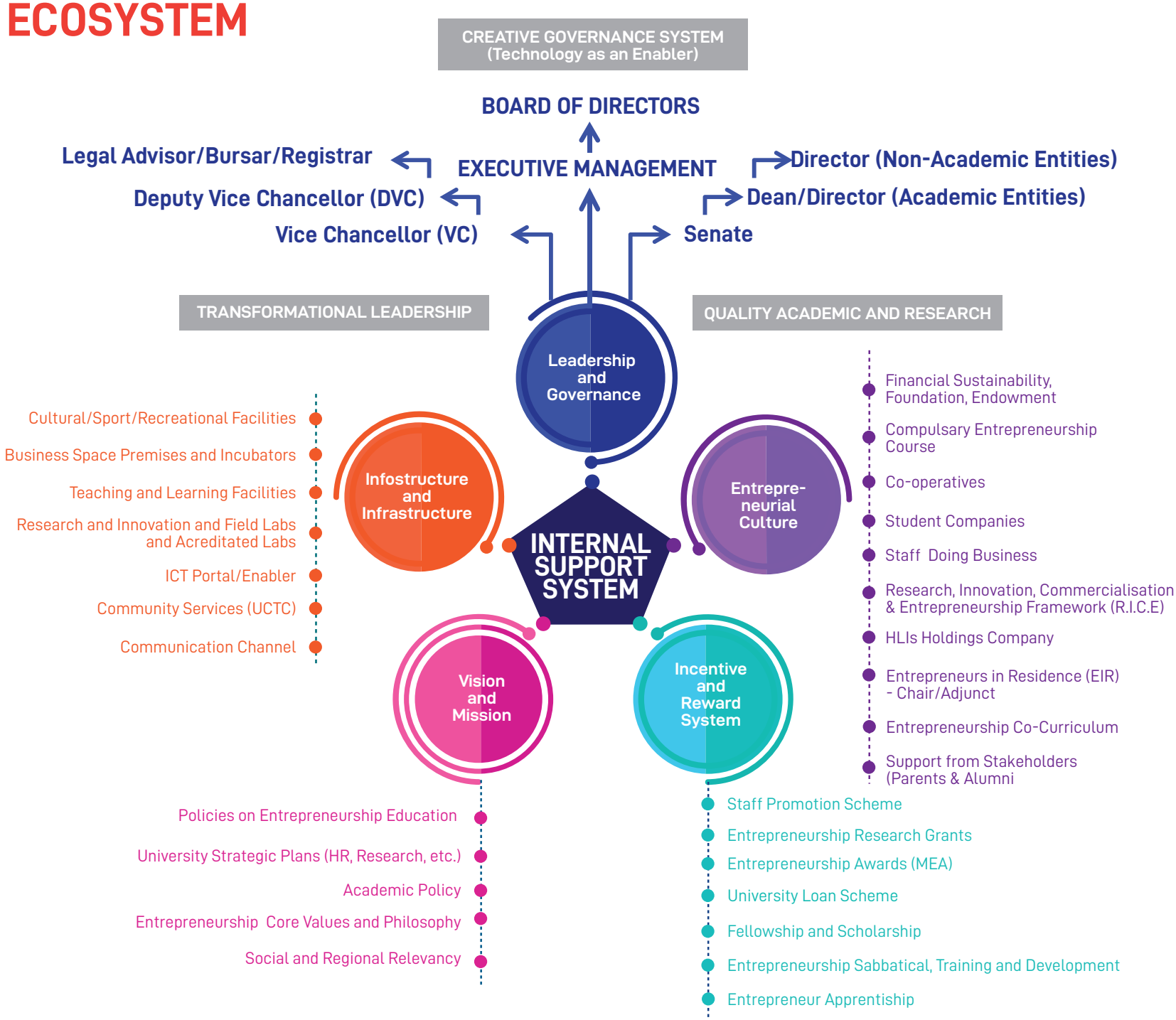


Figure 1: Entrepreneurship Ecosystem

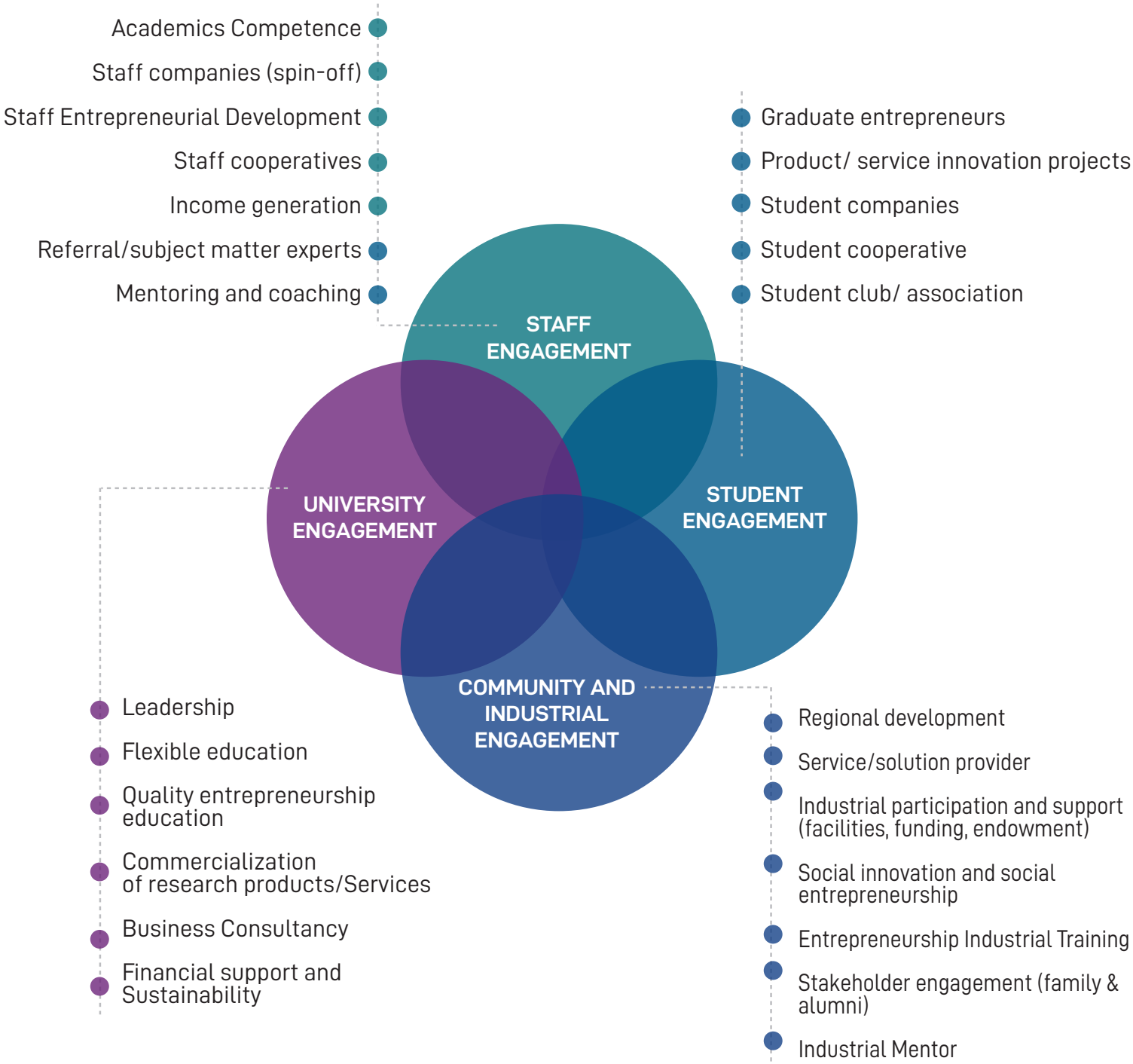


Figure 2: Inclusive Entrepreneurship Ecosystem

The Four (4) Main Stakeholders

01 Students/Graduates

Students/graduates who are highly enterprising, rich with high human values, generic skills, and entrepreneurial attributes (holistic and balanced), are able to own a company, getting involved in non-academic activities and co-curriculum, have strong networking and industrial participation, and adaptable within all levels of society and community.

02 Staff

Staff refers to academic staff (or educators) who are entrepreneurial educators, which are able to exhibit different and creative delivery systems, innovative researchers, staff co-operative, faculty companies, transformational leadership qualities, "team-player", able to face challenges, actively involved in HLIs business activities, including spin-off company and crowd industries relevant to the community and consultancy and possess strong ability in income generation based on their expertise. Non-academic staff who display transformational and proactive qualities, strong and stable governance system, effective and efficient administration which is creative and innovative, "team-player", and are involved in community service and have the sense to generate income and value cost saving strategies are commendable.

03 University (HLIs)/Governance

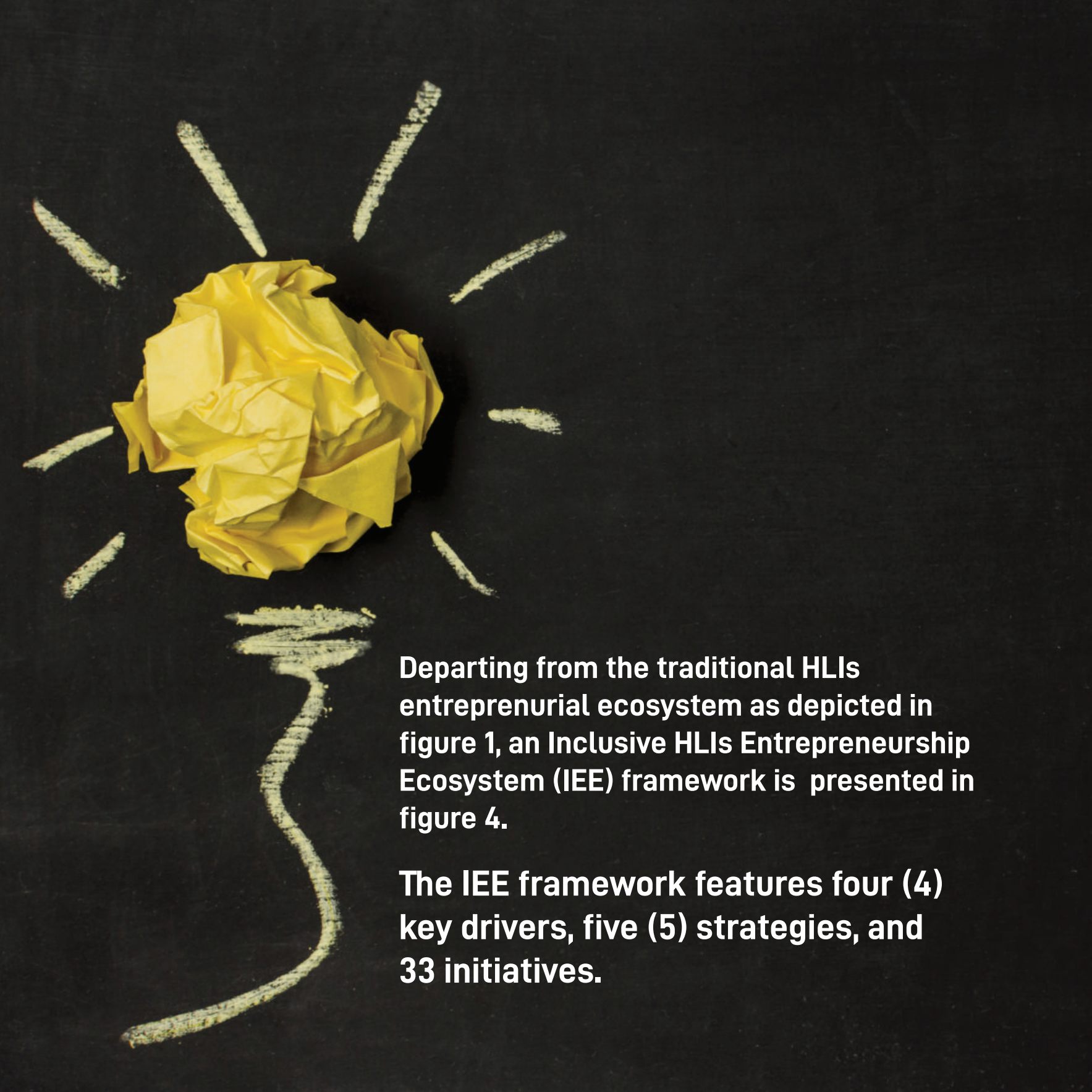
University (HLIs)/Governance refers to leadership of an institution that should be recognised as transformational leadership, excellent performance, visionary, competent and knowledgeable, strategic thinker, possess attributes which are strong in human values, being entrepreneurial, appreciate the contribution of the followers, believe in "collective empowerment" and being respected as role models. These leaders are also risk takers with high accountability. They are leaders who are able to react strategically with a high degree of flexibility based on their ability by considering the opportunities available within the ecosystem. In addition, the policy implemented should be shared and made known to all HLIs citizens.

04 Industry/Community

Industry/Community refers to HLIs-industry-community collaboration through sources of research funding, derive from public, private sectors and industrial collaboration, where institutions act as the solution providers for problems within the industries. Commercialisation of research findings which have direct impact to the community and industries will contribute to income generation. It also involves philanthropic activities and donation in either cash or materials/equipment or even sponsorship for establishment of teaching and research facilities or research centres and buildings. This model is summarised in figure 3.

INDUSTRY/COMMUNITY -HLIs COLLABORATION

Figure 3: Industry/Community-HLIs Collaboration



Departing from the traditional HLIs entreprenurial ecosystem as depicted in figure 1, an Inclusive HLIs Entrepreneurship Ecosystem (IEE) framework is presented in figure 4.

The IEE framework features four (4) key drivers, five (5) strategies, and 33 initiatives.

INCLUSIVE HLIs ENTREPRENEURIAL ECOSYSTEM (IEE) FRAMEWORK

5 STRATEGIES

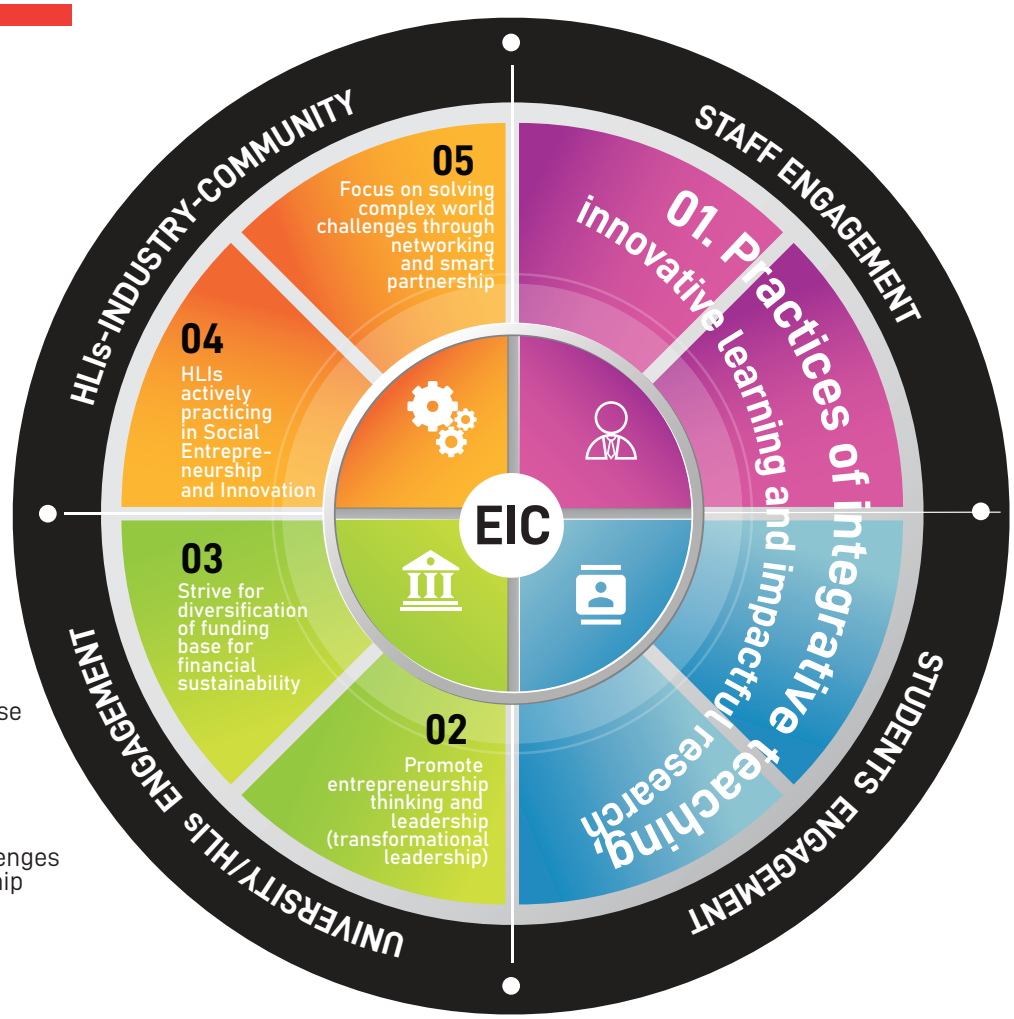
01 To practise integrative teaching, innovative learning and impactful research

02 To promote entrepreneurship thinking and leadership (transformational leadership)

03 To strive for diversification of funding base for financial sustainability

04 To engage in social entrepreneurship and innovation

05 To focus on solving complex world challenges through networking and smart partnership



4 KEY DRIVERS

33 INITIATIVES

STAFF ENGAGEMENT

- Collaboration and Networking
- Business and Industry Speaker/Judges
- Ability to Commercialise
- Staff Entrepreneurial Development
- Business Consultancy
- Co-Operatives
- Staff Doing Business
- Faculty Exchange Programme
- Students Mentoring Programme

STUDENTS ENGAGEMENT

- Student Company
- Case Study
- Impactful Accelerator Programme
- Entrepreneur Graduates Support
- Products/ Services Innovation Project
- Service Learning

UNIVERSITY/HLIs ENGAGEMENT

- Award and Stewardship
- Governance
- Policies (Start-Ups/Spin-Off)
- Government Policies
- Measurement System
- Financial Assistance
- Info and Infrastructure
- Flexible Education
- Staff Promotion Policy
- Technology Infuse Curriculum

HLIs-INDUSTRY-COMMUNITY ENGAGEMENT

- Crowd-Funding
- Solution Provider
- Regional Development
- Accelerator/ Incubator
- Industrial Engagement
- Philanthropies
- Entrepreneurs in Residence (EIR)
- Support from Stakeholders (Family & Alumni)

Figure 4: An Inclusive HLIs Entrepreneurship Ecosystem

STRATEGY S1 // TO PRACTISE INTEGRATIVE TEACHING, INNOVATIVE LEARNING AND IMPACTFUL RESEARCH

HLIs practices of integrative teaching and innovative learning, involving live case-studies and students developing their own business ideas with the support of local businesses an business mentors that inspire entrepreneurial actions through multidisciplinary programmes/approaches. Teaching and learning also cover innovative translational research activities. Translational research are transferable to the stakeholders to provide impacts. Innovative teaching and learning, and research come in many forms.

Flexible education system refers to the mode of pursuing degree in which the students are allowed to complete their degrees to what they desire and choose. Students are allowed to take programmes in different HLIs or complete the degree within the duration they wish or even their specialisation of their own interest.

Teaching and learning can also occur through knowledge generation and dissemination (publication), multidisciplinary programmes, lifelong education, 2u2i (industry-university degree programmes), student-centered learning in the form of project-oriented-based learning, case studies, experiential learning, community-based learning (SULAM), Massive Open Online Courses (MOOC) and student's business-on-campus.

Industrialists and entrepreneurs participation in teaching and learning and also engagement with external are stakeholders are important elements in teaching and learning processes. Industrialists and entrepreneurs participation can also promote research excellence.

Research results are integrated into entrepreneurship education and training. The new findings from research activities are used as materials for the teaching of new knowledge.

Flexible education will foster internationalisation through student and staff mobilities as they are not restricted to the time frame of conventional approach of the education system.

In entrepreneurial teaching and learning, academic staff who are normally known as entrepreneurial educators take an entrepreneurial approach to teach in all departments across disciplines. At the same time, collaborating and engaging with external stakeholders are key components of teaching and learning development. On the other hand, it is vital for students to be exposed to the real experiences on the subject learned. Other stakeholders may also take the role as educators to allow their workplace or business premises to be classrooms or 'living labs'.

STRATEGY S2 // PROMOTE ENTREPRENEURIAL THINKING AND LEADERSHIP (TRANSFORMATIONAL LEADERSHIP)

HLIs drive to promote entrepreneurial leaders

Transformational leaders are those who can make differences, thinking in different ways to improve outcomes, visionary, challenge the status quo, see opportunities and against all odds (taking odds to his/her favour). The entrepreneurial HLIs require strong leadership and must promote the application of entrepreneurial leadership thinking . These leaders are needed to display entrepreneurial behavior which can be supported by university experience, from creating awareness and stimulating ideas to the development and implementation.

Some of the strategic entrepreneurial thinkings of transformational leaders include:

- Entrepreneurship to be made as a major part of the HLIs strategy.
- There is strong commitment at the top management level of HLIs to implement the entrepreneurial strategy.
- HLIs are open to recruiting and engaging with individuals who have entrepreneurial attitudes, behaviours and experience. It is important for the HLIs to have the right people to do the right jobs.
- HLIs need to increase awareness on the importance of developing entrepreneurial abilities amongst staff and students.

STRATEGY S3 // STRIVE FOR DIVERSIFICATION OF FUNDING BASE FOR FINANCIAL SUSTAINABILITY

Strive for diversification of funding base through endowment; specialised services (i.e. consultancy; training; innovative R&D; technology transfer, commercialisation of research outcomes, education through short courses and internal resources).

Engagement in the ownership of high value enterprises, innovation and incubation centres, agrobusiness and business arm in HLIs are among the activities implemented in creating the source of income for the HLIs. Income generation becomes an important role of the institutions due to reduction in the government budget. The existing strategies for income generation need improvements and this may include the folowing:

- Academics need to rigorously consider how to effectively use their expertise for income generation. This will include the organisation of seminars, conferences and short courses, besides being involved in securing grants for research and development of innovations.
- Sources of research funding through public, private sectors and industrial collaboration, where university acts as the solution provider for problems within the industries. Consultancy and contract research are among the indicators for academic excellence.
- Commercialisation of research findings which have direct impact to the community and industries will contribute to income generation. In relation to that, patenting, technology transfer and licensing are greatly relevant.
- Chairs and endowment funds which are obtained from entrepreneurs or corporate organizations will help to support in enhancing activities toward strengthening entrepreneurship.
- Philanthropic activities and donation in cash or materials/equipment or even sponsorship to establish entrepreneurial labs, teaching and research equipments or research centres and infrastructures.

STRATEGY S4 // HLIs ACTIVELY PRACTICING SOCIAL ENTREPRENEURSHIP

Social Entrepreneurship forms unique, relevant and different characteristics for an entrepreneurial institutions because the community and society are the sources for innovation value creation. As such the institutions will be the engine to ensure the new source of income for the community. Apart from providing opportunities for enhancing income, the HLIs must play an important role in changing the society mindset leading to socio-economic changes. The institution's role as the agent of change will strengthen the concept of social responsibility.

HLIs need to connect research, education and industry (wider community) activities together to affect the whole knowledge ecosystem. Quadruple helix concept (university/ HLIs-community-industry-government) will be sustainable if the institutions continuously provides the solution to the existing problem in the community and the industries. One of the sources of economic activity within the community may also be available through the transfer of the outcomes and knowledge of the translational research.

Translational research is applied research which provides tangible research outcomes and can be translated or transformed into commodities for business activities within the community.

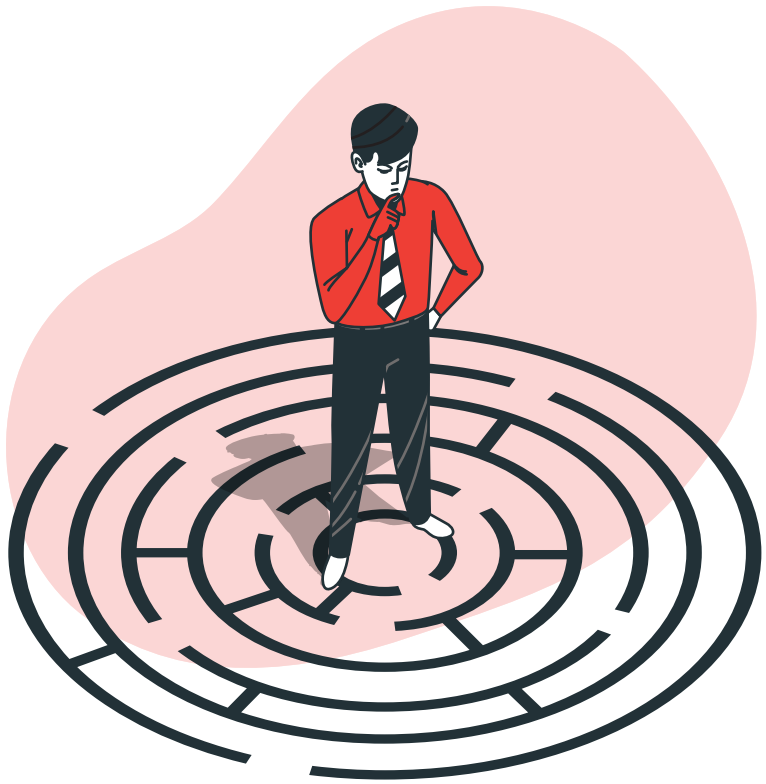
HLIs strive to advocate social entrepreneurship to support the creation of values among the society. Numerous innovations in social entrepreneurship is possible using the expertise from the institutions in various disciplines. The first strategy in social entrepreneurship is to strengthen the positive mindset of the community and these are done through continuous motivational programmes and training in the skills for product development, which will be the potential commodities for businesses. The talents within the community must be capitalised fully to be more competitive. The products need further improvement to enhance the market potentials. The products can also come from the research finding which is transferred to the community.

Two (2) remarakble examples of social entrepreneurship are strengthening the community's economic status through the National Blue Ocean Strategy (NBOS) under the National Transformation Programme; and the University for Society initiatives by MOHE.

NBOS allows community to diversify the income sources and enhance the standards of living. The programmes in the acquisition of skills and technology transfer involve the process of knowledge and skill deliveries in food preparation, tailoring shops and small retailing businesses among others. Besides focusing on upstream activities of agriculture sector, such as the crops plantation, fish rearing, cultivation of honey bees, mushroom fertigation, HLIs should also involve in downstream activities such as agricultural products processing and distribution.

STRATEGY S5 // FOCUS ON SOLVING COMPLEX WORLD CHALLENGES THROUGH NETWORKING AND SMART PARTNERSHIP

The entrepreneurial HLIs capitalises the capabilities in entrepreneurship for regional development by focusing on solving complex world challenges through networking and smart partnership. This will make the institutions relevant to regional and community development to solve social problems pertaining to economy, poverty, infrastructure development, and education.



- There are mechanisms in place for breaking down traditional boundaries and fostering new relationships in bringing the internal stakeholders together including the staff and students to build strategies and synergies between them. As a result, their contribution can be credited and considered as their contribution for promotional exercises.

- The institutions are the driving force for entrepreneurship development in the wider regional, social and community environment by creating strong ties with external stakeholders. This network will be enforced to initiate activities which can contribute to regional development.

- The institutions are also committed in establishing collaborations for knowledge exchange among industry, society and the public sector. The so-called quadruple helix can be used as the vehicle for regional development.

ENTREPRENEURIAL IMPACTS

Impact of a strong and effective entrepreneurial ecosystem that is inclusive, can range from the local to the global, towards the internal stakeholders (students/ graduates, staff) and also affect on external stakeholders (local businesses, organisations and the whole communities). The impact indicators include:

- The increasing number of spin-offs companies resulted from innovations, IP, research outcomes and income generation.
- Academic and non-academic staff who possess unique and different entrepreneurial characteristics which are ever ready and accountable in their roles. The measurement can be made based on the staff achievement to be influential and referral to the community and industry locally or internationally.
- Graduates who are job creators (not job seekers) not only for themselves but also for others. The measurement will be the number of graduates who are involved in businesses upon graduation.
- Development of educational systems including the delivery system that is robust and flexible, for developing human knowledge and skills. The concept of integrated CGPA (iCGPA) may be used.
- The research and innovation performances are based on the amount of income generated from research activities including the highly commercialised research outcomes and the establishment of spin-off or start-ups companies.
- HLIs will be relevant to all the stakeholders/community and this may be measured based on the changes in the community in terms of socio-economic transformation including the change of people mindset.
- The increasing number of HLIs-industry-community collaboration through funding support, research network or infrastructure development.

01 Entrepreneurial Vision, Mission & Culture

02 Entrepreneurship Education & Social Entrepreneurship

03 Infostructure and Infrastructure (include Governance System)

04 Research, Innovation, Commercialisation, Entrepreneurship (R.I.C.E) Activities and Industrial Linkages (eg.: Action Group Entrepreneurship Council)

05 Entepreneurial Staff

Entrepreneurial Impacts

Graduates

- Becoming Job Creator
- Possessing Entrepreneurial Attributes
- Strengthening Business Community Network

HLIs

- Increasing number of Business Start-ups and Activities
- Being recognised as Industrial Solution Providers
- Strengthening Role as Community Advocator

06

ENTREPRENEURSHIP INTEGRATED CURRICULUM (EIC) FRAMEWORK

EIC refers to well combination, organisation or coordination of various related fields to form a structured and substantial entrepreneurship programme that is relevant to the emerging entrepreneurship industry. EIC strives to ensure the constituent disciplines blended effectively. With an integrated curriculum, scientific knowledge can be delivered alongside subject discipline training. The elements of High Impact Educational Practices (HIEPs) and Service Learning Malaysia - University for Society (SULAM) are best to be infused in the curriculum design.

The EIC invigorates innovation and entrepreneurship in HLIs. How to make students to be interested in entrepreneurship and to be more entrepreneurial is probably the most important question in the domain of infusing entrepreneurship knowledge and skills into the academic curriculum. EIC aims to educate HLIs students through effective curriculum to become successful entrepreneurs.

HLIs ecosystem allows both core entrepreneurship knowledge and skills to be instilled in our graduates. However, the ratio and magnitude of exposure differ from one public university to the others. For instance, the Introduction to Entrepreneurship is offered across all public universities, however some public universities are currently offering more than one subject as the core one in the institutions. For example, Universiti Malaysia Kelantan (UMK) has four (4) core entrepreneurship subjects which is currently the only institutions that offers the most number of core entrepreneurship subjects among the Malaysian public universities, while Universiti Teknologi MARA (UiTM) is offering three core entrepreneurship subjects. Other universities like Universiti Malaysia Perlis (UNiMAP), Universiti Perguruan Sultan Idris (UPSI), and Universiti Teknikal Malaysia (UTeM) are offering two core entrepreneurship subjects while few universities only offer one core entrepreneurship subject.

In addition, students are exposed to entrepreneurial hands-on training provided by their respective Centers for Entrepreneurship Development. Entrepreneurship funds are normally allocated by the ministry and key performance indicators (KPIs) are established and cascaded to each HLI centre of entrepreneurship accordingly.

Thus, it is clearly shown that most of the HLIs students are exposed to both core entrepreneurship knowledge and skills. Specifically, the academic faculties are imparting the core entrepreneurship knowledge with minimal core skills through their assessment mechanism while most of the skills are imparted through the entrepreneurship centers.

GUIDING PRINCIPLES (P)

To ensure success in producing high numbers of entrepreneurs, four (4) guiding principles will govern the EIC framework. This guiding principles will guide educators in developing a contemporary and relevant curriculum to the business environment. The curriculum must facilitate students' readiness and motivation, development of entrepreneurial mindset and behavior, and acquisition of latest knowledge and skills in entrepreneurship and business.

P01

Link curricular to real business world

Courses must be embedded with real case studies. Students must be exposed and guided on how business enterprises see opportunities and turn it to be a viable business solution. The essence in linking curriculum to the real business world is to coach students to practise problem-based learning. While educators are guided to develop new case studies through the teaching and learning process.

P02

Problem-based and experiential learning

Students will be taught using problem based and experiential learning. They will be given real business challenges to understand the risk and challenges faced by entrepreneurs by having industrial visits and attachments. Students must be guided how to identify social problems, and consumer problems and propose the best innovative solutions to solve the problems. Through problem-based approach, students will experience the process of entrepreneurship and develop their confidence levels and critical thinking.

P03

Technology-infused curricular

Emerging and latest technology must be embedded in each course to demonstrate augmented reality using such technologies in the context of entrepreneurship endeavour and business operations. For example, application of artificial intelligence, internet of things, business machine and other technology tools in marketing, ecommerce, logistics, economic analysis are deemed to be relevant today and in the future.

P04

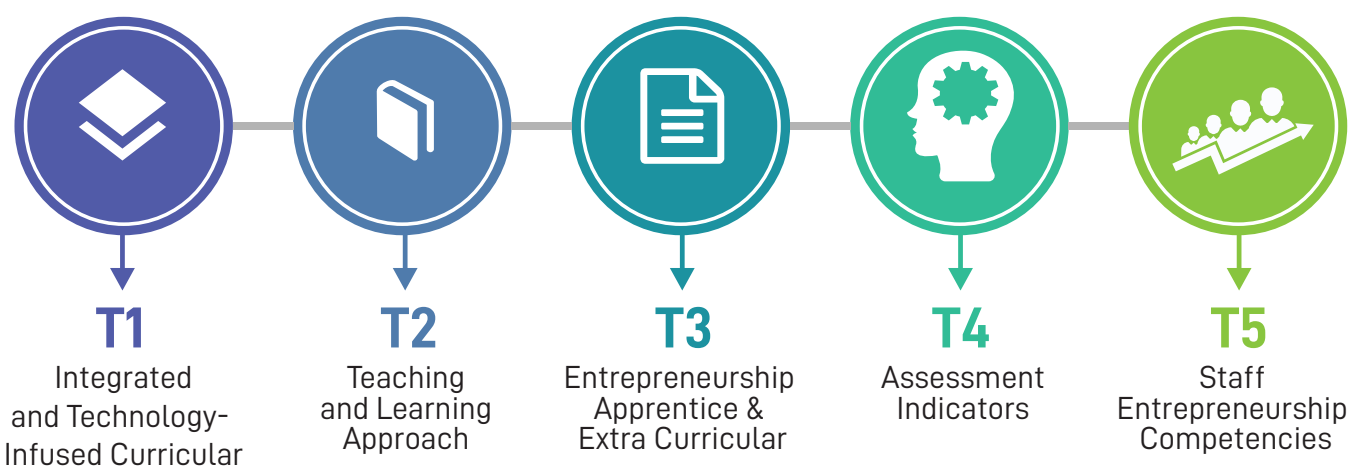
HLIs-industry-community linkages

It is important to establish HLIs-industry-community linkages to understand and work in tandem to produce sustainable entrepreneurs. Collaborative projects will impact the learning process for both educators and students. Through collaborative projects, it will harness potential business opportunities that bring benefits to students, industry and community partners. These linkages may stimulate the entrepreneurial research and innovation activities.

THE FIVE (5) THRUSTS OF EIC

Five (5) thrust components governing the EIC framework which are the integrated and technology-infused curricular (T1), teaching and learning approach (T2), entrepreneurship apprentice and extra curricular (T3), assessment indicators (T4), and staff entrepreneurship competencies (T5).

These five (5) components form the main pillars in entrepreneurship curriculum development and each component cannot be isolated from each other as it gives strong impact to the standards and quality of the curriculum.



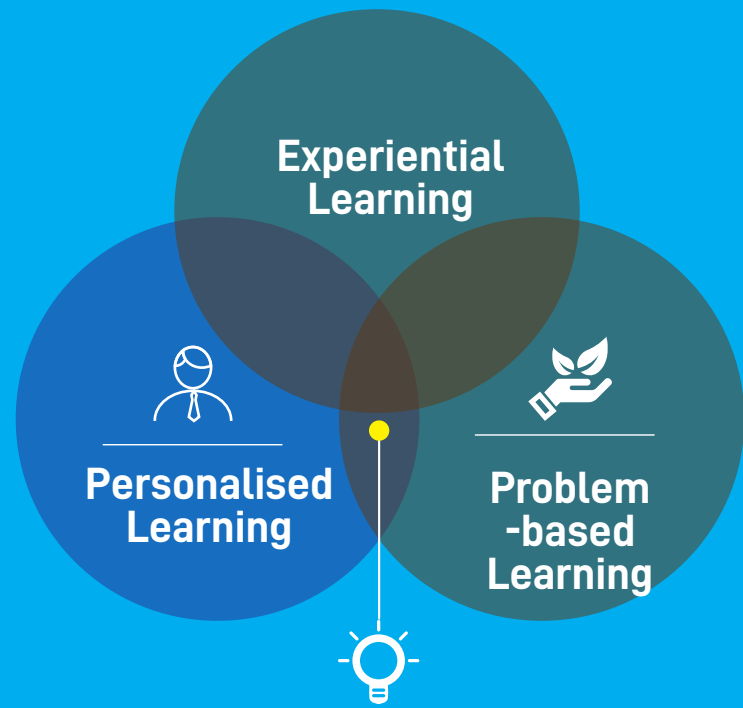
T1 Integrated and Technology-Infused Curricular

Each academic curriculum and its courses must ensure to provide current knowledge and relevant application of technology tools that necessitate the current business environment. Each course will develope the analytical ability and competencies that are for students to become entrepreneurs or for those who are already part of growing business. An integrated and technology based curriculum focuses on world view perspective of the subject matter using modern technology components and solutions to relate various disciplines (like economics, finance, technology application in entrepreneurship, digital marketing, and e-commerce).

The eleven (11) HIEPs approaches regarded as best to be embedded in designing and integrated academic curriculum are as follows:

- First year Experiences
- Common intellectual experiences
- Learning communities
- Writing-intensive course
- Collaborative assignments and projects
- Undergraduate research
- Diversity/global learning
- Service learning
- Community-based learning
- Internships/Apprenticeships
- Capstone courses and projects

Students enrolled into programmes other than entrepreneurship and business degree, entrepreneurship education should be infused into their academic programme and/or courses. Curriculum development should consider industrial/entrepreneur experts from outside the HLIs.



T2 Teaching and Learning Approach

it is important to emphasise on personalised learning, problem-based learning, and experiential learning. These methods help students to organise their assignments, boost collaboration, and foster better communication. Personalised learning refers to a diverse variety of educational programmes and learning experiences. It aims to customise learning for each student's strengths, needs, skills, and interests. To engage students in real-world challenges, problem-based learning is a high impact curriculum practice for all students. Problem-based learning is a student centered pedagogy that allows them to identify and solve the problem faced by the industries/community while experiential learning is a process of learning through experiences. Through experiential learning students are able to develop and apply knowledge, skills, and values from direct experiences outside the traditional academic setting.

Project-Oriented-Problem-Based Learning (POPBL)

is an instructional methodology that has been applied in many other Teaching and Learning (T&L) activities. POPBL incorporates the development of students' personal skills and also promotes creativity in any given T&L environment.

In addition, the SULAM initiative needs to be applied which aims to allow students to experience learning by relating theories and practices to solve actual community problem based on *Kasih Sayang (Love), Kegembiraan (Happiness), and Saling Menghormati (Mutual Respect).* Development and collection of case studies must be praticed. This exercise should cover at all types of academic programmes. The case study must be based on real company or student experiences in entrepreneurship activities especially those who have experience in setting up and managing a company.

T3 Entrepreneurship Apprentice (EA) & Extra Curricular (EC)

The EA and EC must be designed to strengthen knowledge application and skills development among students. Students who are passionate in entrepreneurship and business must be allowed to take up the EA in replacement of the conventional industry internship. This option must be extended to business entrepreneurship students (BES) and non-business entrepreneurship students (non-BES). EA must emphasise on students' attachment to start-up companies or through a guided process to set-up a new entreprise. For non-BES, the EA and EC platforms allow these non-BES students to acquire advanced knowledge and skills in entrepreneurship.

EA and EC allow students to enhance their knowledge and experience by participating in business competition and pitching, innovation competitions, ideation competition, exposure on intellectual property framework, and commercialisation process and activities. Other examples, including the establishment of Student Street or Student Mall for business, community entrepreneurial leadership programme as an extra curriculum and as part of social entrepreneurship (SULAM) activities.

T4 Assessment Indicators

The effect of EIC lean on the assumption which is an entrepreneur is a consciously planned behaviour. A linkage between attitudes, intentions, and behaviour is based on the Theory of Planned Behaviour (TPB) taken from the phsychology domain (Ajzen, 1991; Bandura, 1997). If students' attitudes towards entreprenuership are positively influenced by EIC, their intentions will also change, and subsequently lead to the desired entrepreneurship behavior. Thefore both cognitive and non-cognitive aspects must be assessed.

There are four (4) components of assessment for entrepreneurship curriculum which are new knowledge attainment, new skill sets acquisition, number of start-ups and enterprises, and number of collaborative projects which are critical to measure the succes of both graduate entreprenuers and student entreprenuers.

The assessment domains will cover cognitive, affective and psychomotor. However, the intensity of each domain depends on the course learning outcomes and level of the courses whether it is basic or advanced domain of knowledge. In addition, both economic values (i.e.: sales and revenue generated through student entreprises) and non-economic values (social return outcomes such as number of jobs created and improved quality and well being of the society) are essential to be assessed. All assessment indicators require specific rubric for evaluation purposes.

Graduate Entrepreneurs | **Student Entrepreneurs**

New Knowledge

New set of skills

- To think beyond norms
- To act beyond norms
- Courage (*Ehsan*)
- Skills of doing business
- New technology skills

Outcomes

- New enterprises
- Start-ups
- New companies
- Number of impactful collaborative projects
- Return on Investment (ROI)
- Sales and Revenue
- Social Return on Investment (SROI)
- Number of Jobs Created
- Improved well being of society

01

NEW KNOWLEDGE

Recent or latest knowledge acquired through observation, learning, thinking and experience.

02

NEW SKILL SETS

Recent or latest knowledge and ability that enable one to do something well.

03

NUMBER OF START-UPS AND ENTERPRISES

Number of companies established by the students and staff.

04

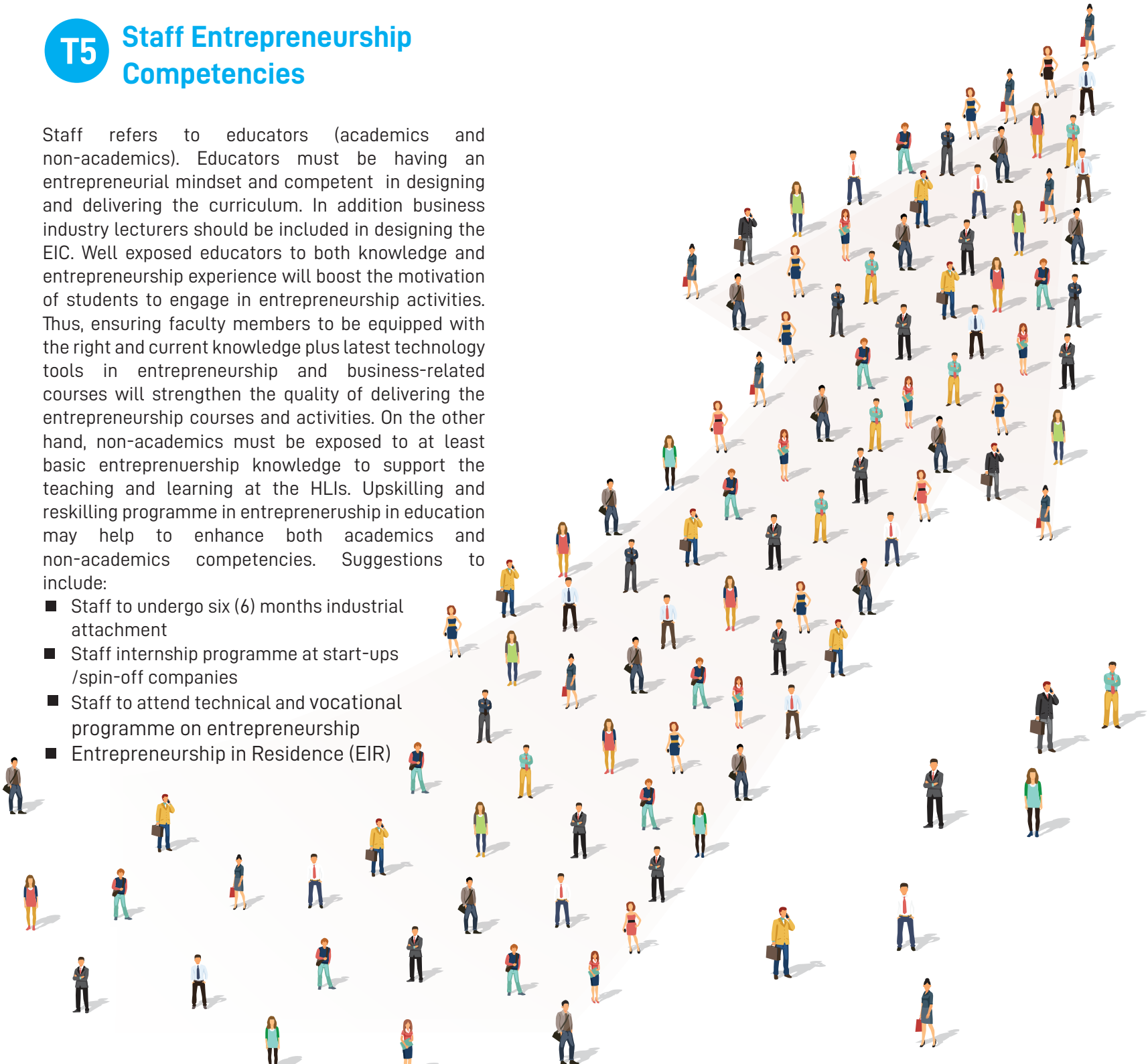
NUMBER OF COLLABORATIVE PROJECTS

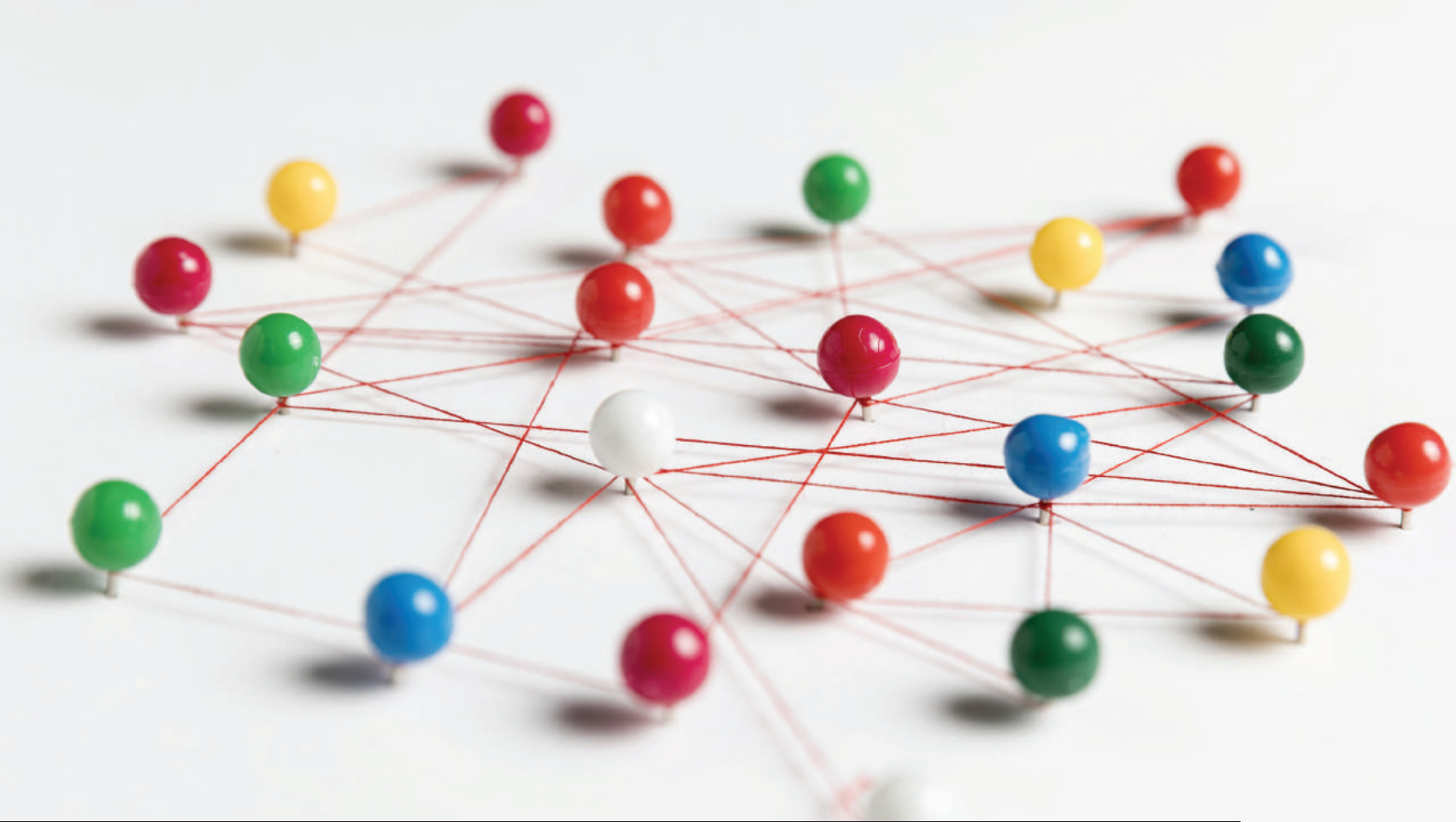
Number of collaboration with other external parties that have impact on the industry and society.

T5 Staff Entrepreneurship Competencies

Staff refers to educators (academics and non-academics). Educators must be having an entrepreneurial mindset and competent in designing and delivering the curriculum. In addition business industry lecturers should be included in designing the EIC. Well exposed educators to both knowledge and entrepreneurship experience will boost the motivation of students to engage in entrepreneurship activities. Thus, ensuring faculty members to be equipped with the right and current knowledge plus latest technology tools in entrepreneurship and business-related courses will strengthen the quality of delivering the entrepreneurship courses and activities. On the other hand, non-academics must be exposed to at least basic entreprenuership knowledge to support the teaching and learning at the HLIs. Upskilling and reskilling programme in entrepreneruship in education may help to enhance both academics and non-academics competencies. Suggestions to include:

- Staff to undergo six (6) months industrial attachment
- Staff internship programme at start-ups /spin-off companies
- Staff to attend technical and vocational programme on entrepreneurship
- Entrepreneurship in Residence (EIR)

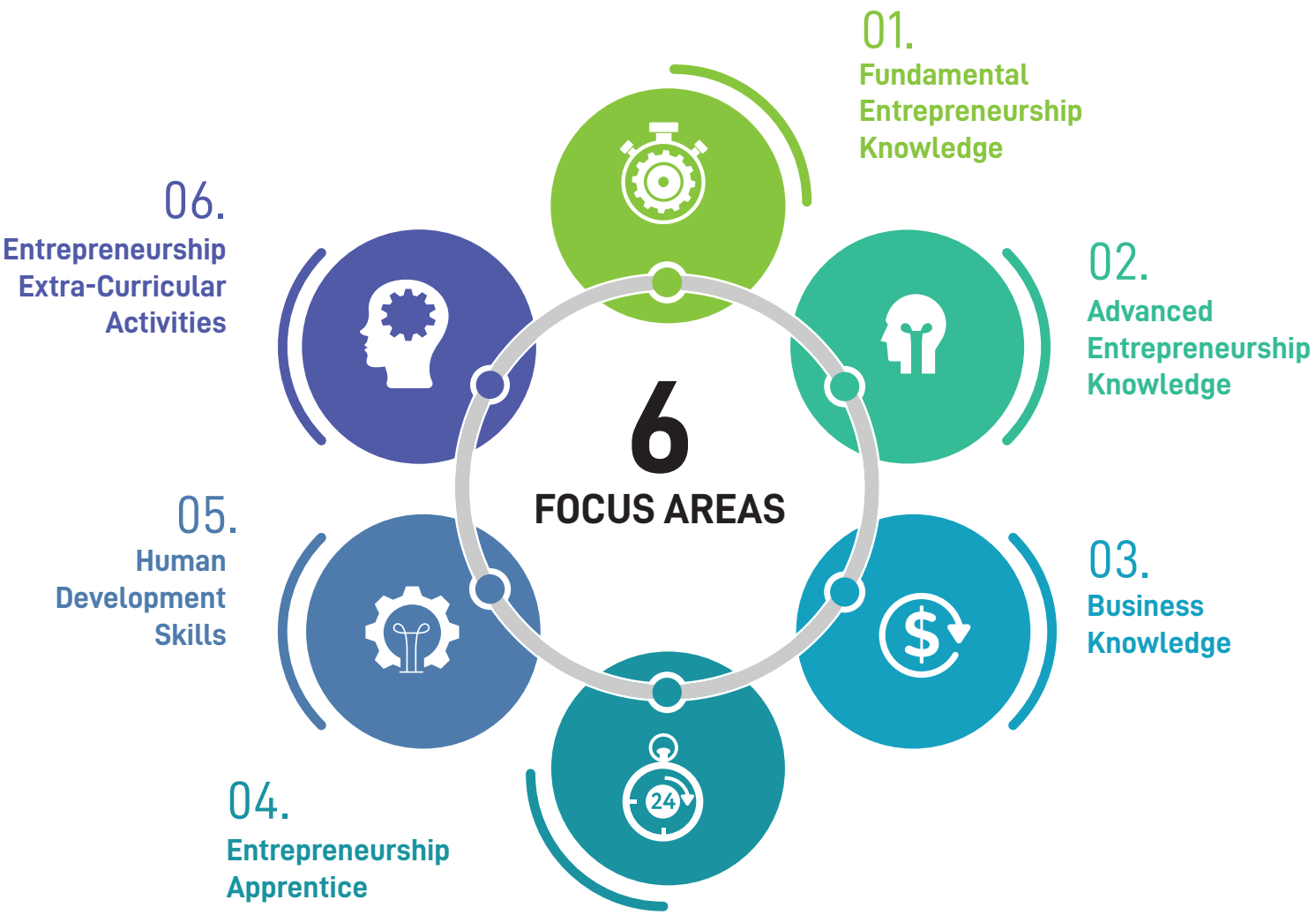




Six (6) focus areas govern the mapping of EIE between Business Entrepreneurship Programmes (BEP), Business-Related Programmes (BRP) and Non-Business Entrepreneurship Programmes (Non-BEP) offered by HLIs.

The six (6) focus areas are perceived to be the main pillars and relevant entrepreneurship education to ensure students to be equipped with the right knowledge and skills in entrepreneurship. Description of the six (6) focus areas are presented in table 1. The mapping indicates the weightage that is refered to the percentage required for each focus area, and this weightage is based upon the total credits (TC) required for graduation by each academic programme. For example, if TC is 120 credits, therefore with 10% of weightage, the focus area would require 12 credits.

MAPPING OF EIE FOR BUSINESS ENTREPRENEURSHIP PROGRAMMES (BEP), BUSINESS-RELATED PROGRAMMES (BRP), AND NON-BUSINESS ENTREPRENEURSHIP PROGRAMMES (Non-BEP)



- **BEP** refers to Entrepreneurship and Business Entrepreneurship academic programmes. For example, Bachelor of Entrepreneurship, Bachelor of Business Entrepreneurship at undergraduates level; and Master in Entrepreneurship and Doctorate of Entrepreneurship at postgraduates levels.
- **BRP** refers to business-related degree programmes. For example, Bachelor in Business & Administration, Bachelor in Management, Bachelor of Economics, Bachelor of Marketing, Bachelor of Finance, Bachelor of Logistics, Bachelor of Human Resource Management, Bachelor of Accounting and other business related degrees at both undergraduates and postgraduates levels.
- **Non-BEP** refers to any programme other than BEP and BRP at both undergraduates and postgraduates levels. For example, Bachelor of Engineering, Bachelor of Information Technology, Bachelor of Medicine, Bachelor of Veterinary, Bachelor of Architecture, Bachelor or Arts and Heritage, and Bachelor of Social Sciences.

The following presents the mapping of the six (6) focus areas between the weightage, delivery approach and assessment domain that needs to be emphasised among the BEP, BRP and Non-BEP. This mapping serves as minimum standard for HLIs to design their entrepreneurship education programme.

FOCUS AREAS	DESCRIPTIONS	WEIGHTAGE (%)			DELIVERY APPROACH	ASSESSMENT DOMAIN
		BEP	BRP	Non-BEP		
01. Fundamental Entrepreneurship Knowledge	Students need to be exposed and prepared with basic entrepreneurship knowledge before they can start becoming an entrepreneur. They need to understand the concept, theories, attributes, key resources, and behaviour of entrepreneurship. Among the attributes that need attention will be the legal environment, environment analysis, and ability to develop business plans. Besides that, ecosystems play an important role in enhancing their entrepreneurship knowledge. The proposed courses: ▪ Fundamental of Entrepreneurship ▪ Entrepreneurial Behaviour ▪ New Venture Creation	10% (i.e 12 credits or equivalent to 4 subjects to be compulsory)	10%	10% (i.e 2 subjects to be compulsory and 2 other subjects as electives)	• Interactive Lecture • Collaborative Learning	• Cognitive • Affective • Psychomotor

FOCUS AREAS	DESCRIPTIONS	WEIGHTAGE (%)			DELIVERY APPROACH	ASSESSMENT DOMAIN
		BEP	BRP	Non-BEP		
02. Advanced Entrepreneurship Knowledge	This level of advanced knowledge gives students the opportunity to explore their entrepreneurial potential. This level emphasises on strategic plans, new tools, new technologies, integrated resources, and development of business plans. The propose courses for this area: ▪ Innovation and Entrepreneurship ▪ Corporate Entrepreneurship ▪ Technopreneur ▪ Application of Technology in Business ▪ Business Negotiation Skills ▪ Business Plan ▪ Entrepreneurship Law ▪ Social Innovation and Entrepreneurship ▪ Digital Entrepreneurship ▪ Digital Marketing ▪ Strategic Entrepreneurship	25% BEP (i.e 25% or equivalent to 30 credits to be compulsory) BRP (i.e 15% or equivalent to 18 credits to be compulsory)	15%	To be embedded in majoring programme /course structure; **OR** acquired through EA and EC programme; **OR** double major	• Collaborative Learning • Problem-based Learning • Project-based Learning • Case study Learning • Micro Credential Learning	• Cognitive • Affective • Psychomotor
03. Business Knowledge	In business knowledge students need to understand the concept of business components such as financial, marketing, operation management, ecommerce, economy, business analytics, etc. The proposed courses: ▪ Financial Management ▪ Accounting Management ▪ Marketing Management ▪ Business Ethics ▪ Business Analytics ▪ Entrepreneurship Ethics ▪ International Business Strategy ▪ E-Commerce ▪ Business Intelligent Tools and Applications	20% BEP (i.e 20% or equivalent to 24 credits to be compulsory) BRP (i.e 35% or equivalent to 42 credits to be compulsory)	35%	To be embedded in majoring programme /course structure; **OR** acquired through EA and EC programme; **OR** double major	• Collaborative Learning • Problem-based Learning • Project-based Learning • Case study Learning • Micro Credential Learning	• Cognitive • Affective • Psychomotor

FOCUS AREAS	DESCRIPTIONS	WEIGHTAGE (%)			DELIVERY APPROACH	ASSESSMENT DOMAIN
		BEP	BRP	Non-BEP		
04. Entrepreneurship Apprentice (EA)	EA is a platform to support entrepreneurial. Students will experience the real business scenario. This allows them to practise the knowledge gained in entrepreneurship education. EA also allows students to initiate business start-ups and encourages them to register with the Companies Commission of Malaysia (SSM) or Student Companies Registration at their institutions. The proposed courses: ▪ Entrepreneurial Apprenticeship ▪ New Venture Creation ▪ Graduate Project (PROSIS) ▪ Student in Entrepreneurship Programme (SIEP) ▪ To create entrepreneurship track	30% (i.e 30% or equivalent to 36 credits to be compulsory)	10% (i.e 10% or equivalent to 12 credits to replace industrial attachment)	10%	• Experiential Learning • Problem-based Learning • Project-based Learning • Personalised Learning	• Cognitive • Affective • Psychomotor
05. Human Development Skills (HDS)	HDS is an important elements to be acquired. This includes personality development, communication, business negotiation skills and acquiring the third language. Mandarin language is commendable to be learnt by students. HDS nurtures strong interpersonal, human relation networking and being resilience in the business environment. The proposed courses: ▪ Mandarin, French, etc. ▪ Business Communication Skills ▪ Entrepreneurial & Human Relation ▪ Persuasive Communication ▪ Conflict Resolution ▪ Philosophy of Knowledge ▪ TITAS ▪ Ethnic Relationship	10% (i.e 10% or equivalent to 12 credits to be compulsory)	10%	10%	• Interactive Lecture • Collaborative Learning • Inquiry-based Learning	• Cognitive • Affective • Psychomotor

FOCUS AREAS	DESCRIPTIONS	WEIGHTAGE (%)			DELIVERY APPROACH	ASSESSMENT DOMAIN
		BEP	BRP	Non-BEP		
06. Entrepreneurship Extra-Curricular Activities (EEC)	EEC will strengthen students' skill in entrepreneurship. The activities outside classroom would allow students to participate and contribute ideas. EEC programmes can be handled through the co-curriculum centres of the HLIs. The proposed courses/ programmes: ▪ Entrepreneurial Week ▪ Entrepreneurs Pitching & Debate ▪ Entrepreneurship Festivals ▪ Business Plan Competition ▪ Innovation Competition ▪ Entrepreneurship Colloquium ▪ Social Enterprise Projects ▪ To create entrepreneurship track	- (i.e embedded into the programme structure)	10% (i.e 10% or equivalent to 12 credits from the entrepreneurship track)	10 %	• Experiential Learning • Problem-based Learning • Project-based Learning • Personalised Learning	• Cognitive • Affective • Psychomotor

MAPPING OF EDUCATION LEVELS, ASSESSMENTS, AND OUTCOMES

This book will guide HLIs to map the level of education programmes to the assessment domains and outcomes.

Table 2: Mapping of MQF Level of Education to the assessment domains

Assessment Domains / MQF Level of Education	Cognitive (C)	Affective (A)	Psychomotor (P)
Diploma	C1 – C3	A1 – A3	P1 – P3
Advanced Diploma	C1 – C4	A1 – A4	P1 – P4
Bachelor	C1 – C6	A1 – A5	P1 – P5
Master	C4 - C6	A3 - A5	P3 - P7
Ph.D	C4 - C6	A4 - A5	P4 - P7

Table 2 describes the mapping of MQF level of education to the assessment domains required for each level. The MQF level of education refers to Diploma level up to Ph.D level. Each level of education is suggested to correspond to appropriate levels of assessment of each domain (cognitive, affective, psychomotor). Each HLI must be able to map the courses learning outcomes (CLOs) according to the programme learning outcomes (PLOs). Rubric of assessment must be established to measure the students' achievement.

Table 3: Mapping of outcomes to the MQF Level of Education

MQF Level of Education / Outcomes	Bachelor			Master (by taught courses) eg. MBA, ME	Ph.D (by taught courses) eg. DE
	BEP	BRP	Non-BEP		
Level of knowledge and entrepreneurial mindset.	HR	HR	HR	HR	HR
New business creation (i.e., start-ups/enterprises/ companies)	HR	MR	NR-R	HR	HR
Accelerating the existing business (if any)	MR	NR	NR	MR	HR
Diversifying the business	NR			R-MR	HR
Products/Services/ Innovation development	HR	HR	HR	HR	HR
Social entrepreneurship	HR	R	R	HR	HR
Ability to solve complex problems	R	R	R	HR	HR

Table 3 describes the mapping of MQF level of education for BEP, BRP and Non-BEP to the density of entrepreneurship outcomes. The entrepreneurship outcomes are suggested to be:

- New business creation (i.e., start-ups/enterprises/companies)
- Accelerating the existing business
- Diversifying the business
- Products/Services/Innovation development
- Social entrepreneurship

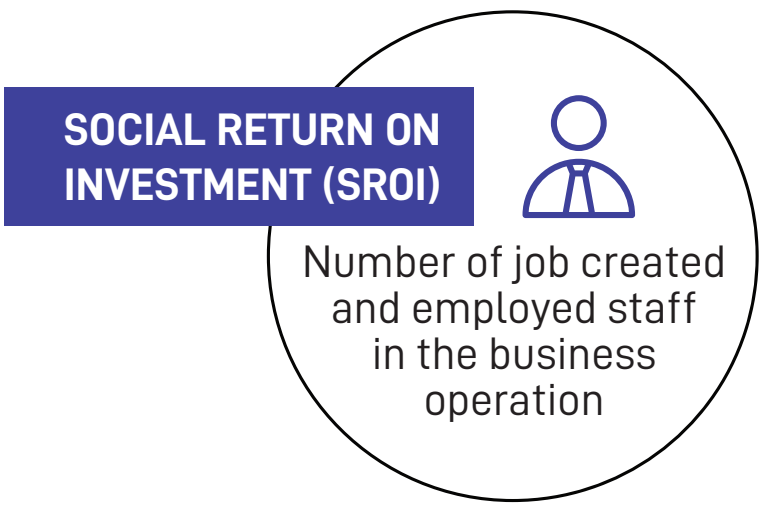
Level of requirement (percentage):
1 : Not Required (NR) - (0%)
2 : Required (R) - (50%)
3 : Moderately Required (MR) - (60%)
4 : Highly Required (HR) - (80%)

Note: The percentage implies the level of knowledge and ability acquired by the students which is assessed using any measure of entrepreneurship effectiveness.

ENTREPRENEURIAL SUSTAINABILITY ASSESSMENT (ESA)

ESA focuses on measuring the sustainability of the businesss established by the students at campus (during their study) or after graduating. The business will be assessed after six (6) months upon graduating and subsequently every year for the next two (2) years. However, a business agreement must be established between the students company and their respective HLIs. The assessment parameters include return on investment (ROI) and social return on investment (SROI) such as number of employees created by the student enterprises.

The progress of the students businesses is suggested to be assessed in three (3) phases - admission of new students, during study (on campus) and after graduation (off campus). Nonetherless, it is best for each HLI to conduct a pre-entrepreneurship assessment survey among the new intake of students. This to be done during the admission phase. However, the acquisition of entrepreneurship knowledge by the students must be assessed through a proper instrument that measures the level of knowledge acquired, mindset, entrepreneurship skills and behaviour. On this note, an Entrepreneurship Index is proposed.



- ROI refers to annual sales and revenue, incomes and some other financial indicators to indicate the financial strength of the student company.

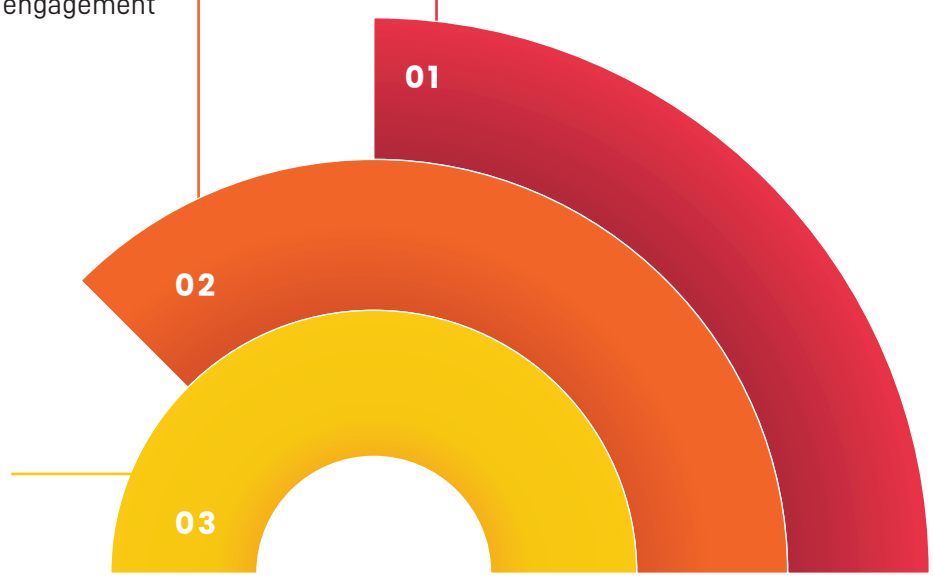
- Employees refers to the number of both full time and part time employees at the company. The growth in number of employees implies the number of jobs created and the expansion of the company.

01
ADMISSION

- Profiling test to assess entrepreneurship inclination and readiness of the new students.
- Entrepreneurship interview
- To identify the entrepreneurship DNA i.e. family business or any entrepreneurship activities experienced by the new students.

02
ON CAMPUS

- Exposure to fundamental and advanced entrepreneurship knowledge.
- Knowledge and skills assessment, number of business start-ups and student enterprises.
- Sustainability measure includes sales and revenue, products and/or services development.
- Post assessment on entrepreneurship engagement to be assessed among the students.
- To establish SE database.



03
OFF CAMPUS

- To evaluate and monitor the growth and sustainability of the student company in terms of sales and revenue, products/services development, and number of employees and jobs created.
- Post assessment on entrepreneurship engagement to be assessed between six (6) and 24 months upon graduation.
- To be conducted by CEDE.
- To establish SE and GE database.

The only limit to our realisation of tomorrow will be our doubts of today.
-Franklin D. Roosevelt

07

WAY FORWARD

The **Entrepreneurship Integrated Education (EIE)** serves as guidelines and criterion that embrace the inclusive HLIs entrepreneurship ecosystem framework and the entrepreneurship integrated curriculum framework to be universal and succinct to support the vision of the Ministry of Higher Education to produce holistic, entrepreneurial and balanced graduates. This EIE guide will support the government aspiration to become an entrepreneurship nation by 2030. The dynamic change in the economic and business environment stimulates the entrepreneurship education agenda to be innovative, technology-infused curricular and impactful to the industry and society. Changing the mindset of students from being job seekers to job creators shall spur the development of the entrepreneurship industry in the country.

An inclusive university (HLIs) entrepreneurship ecosystem (IEE) that cemented by the four (4) core strategies which are student engagement, staff engagement, university engagement, and community and industry engagement, with five (5) strategies and 33 initiatives are essential to facilitate the entrepreneurship enculturation process and entrepreneurship curriculum development. On the other hand, the EIC contains five (5) pillars serve as fundamental components for entrepreneurship curriculum development which involve six (6) focus areas to accelerate the process of building the entrepreneurship knowledge, mindset and characters, skills development and ability to recognise and exploit opportunities.

A RECOMMENDATION : EIGHT (8) BEST ENTREPRENEURIAL PRACTICES

1 Link Curricular to the Real World Business

The curriculum should be designed by infusing the real world business or entrepreneurship related activities into the academic programmes. Entrepreneurship education is about creativity, innovation and problem solving. This can be done among others by connecting students through life experiences, weaving real world examples, inviting guest speakers, practising real world research, using primary source documents, leveraging on alumni as 'the expert' and establishing Business-Entreprenuersip-Learning Network. In addition, the inclusion of industry players or entrepreneurs in the curriculum design team is inevitable. This integrated curriculum and learning not only will change the student's perception on business career opportunities but it also helps to enhance their talent and skills associated with entrepreneurship.

2 Impactful Accelerator Programmes

Accelerator programme is very important for start-ups in their early phases. It supports the student entrepreneurs in terms of business knowledge, direction, and emotional. The student entrepreneurs will be guided by their mentors and help them to accumulate information and knowledge related to business opportunities and start-ups. Some examples of the accelerator programme are start-ups bootcamp, GIG economy programme, techstars, plug and play, internet initiatives fund, AnglePad and SeedCamp.

3 Building Strong Business Partners

The adage that two brains are better than one may explain why HLIs should have strong business partners. Engaging with business partners, especially the established one, would help HLIs to bridge the gap in expertise and knowledge that is required for the current market. The intitutions will have the chance to access a wider range of expertise and information needed for entrepreneurship development. Partnering with other companies, considering partnes as part of the team, being honest and transparents, and co-branding the course of academic programme would be among the initiatives.

4 High Number of Philantropies

Many industry icons and socialists have used their success to help needy people by donating money for charity or sponsoring any events, co-owned incubators and other impactful collaborative projects. It is important to understand and focus different philanthropies such as social entrepreneurialism which allows the student entrepreneurs to take advantage of the entrepreneurship opportunities. The existence and support from the philanthropies have at large spur the research, innovation and entrepreneurship agenda of the universities. To attract philanthropies, HLIs must ensure board members, or panel advisors know their roles, established workable business and marketing plan, identify a clear values for any project or lab establishment, and establish a win-win strategy between philanthropies and the HLIs. Philanthropies can spur the development of business simulation labs as well as teaching factory in the campus.

BEST ENTREPRENEURIAL PRACTICES

5 Strong Entrepreneurial Ecosystem

Fostering entrepreneurship has become one of the main agenda for entrepreneurial universities. HLIs should have a strong entrepreneurial ecosystem which leads them to have more student enterprises and business start-ups. These include clear entrepreneurial governance and policies, strong entrepreneurial leaders, establishments of innovation labs, business incubators, business learning factory, business consultation and coaching, and seed money to support the development of student start-ups and enterprises. In addition, an inclusive entrepreneurship ecosystem must be fostered through frequent engagements with various stakeholders.

6 Technology-Infused Curricular

Technology infusion is the process of binding technical needs and potential solutions. The infusion of latest technology in curricular has been a huge advantage for entrepreneurial education. Infusion of new technology tools like artificial intelligence (AI), and business machines would certainly strengthen the students' application of knowledge and evolutionary economics. In addition, adopting advanced teaching technology methods is important to make the learning more interactive and effective for the educators. Technology infusion is a great addition to make entrepreneurship education more personalised and access to a global perspective. This include digital technology, ecommerce, digital marketing, AI in teaching and learning and other emerging technologies can be adopted in the business entrepreneurship domain. Development of hybrid academic proramme that combines business, entreprenership and information technology (eg. Business Analytic Degree is encouraged). Technology makes it posssible for potential entrepreneurs, to acquire new knowledge on business processes and decision-making tools.

7 Case Studies Sharing and Development

Intensive study of one particular company helps students to understand deeper about the business process and operations in the real world. Educators should encourage students to identify real issues facing the industry and suggests appropriate solutions. On the other hand, educators together with the students should be able to develop various companies' case studies which can be a good exercise to promote research and case study development in the HLIs. The business cases allow students to strengthen their cognitive skills, improve their analysis and evaluation skills. To educators, it will enhance knowledge and compilation of good and quality of real business cases. Curriculum should give emphasis on case study development learning of top pop companies or top entrepeneurs practices in real setting. Work-based and problem-based learnings, hence are promoted and practiced at the HLIs.

8 Business and Industry Lecturers (BILs)

Hiring industry experts or business lecturers with a certain level of experience will help students to learn from the practical aspects and, to a certain extent they will be able to translate the theories and concepts of entrepreneurship into practice. These BILs are not only sharing their industry experience but also sharing the significance of systems, skills and processes that are required in any business operations. Combination between HLIs educators and BILs can inspire students to engage in entrepreneurship activities and research. Inclusion of business and industry lecturers in the faculty implies that the faculty is enterprising and having the ability to relate theories to real business world. For example, Entrepreneur-in-Residence (EIR) to act as mentors to the students and even educators is commendable.

B RECOMMENDATION : ENTREPRENEURSHIP GOVERNANCE STRUCTURE

Table 4: Governance Structure

ENTREPRENEURSHIP CENTRE	TERM OF REFERENCES (TOR)	CUSTODIAN
Higher Learning Entrepreneurship Council (MAKIPT)	■ To review and monitor the entrepreneurship performance of HLIs ■ To establish policy related to entrepreneurship ■ To coordinate entrepreneurship activities among HLIs	■ Chaired by Minister ■ Secretariat JPT ■ Members: KSU, 2 TKSU, 2 KP, 4 VC University and 5 Industries by cluster
Division of Entrepreneurship Development and Excellence (DEDE)	■ To create database on student and graduate entrepreneurs at national HLIs. ■ To review performance and monitor KPIs of entrepreneurship at HLIs every 6 months. ■ To allocate and manage entrepreneurship research, projects and activities. ■ To coordinate entrepreneurship performance and achievement between HLI and the ministerial level.	JPT (to establish Centre for Entrepreneurship Development and Excellence)
Centre for Entrepreneurship Development and Excellence (CEDE)	■ To create database on student and graduate entrepreneurs at individual HLIs. ■ To register start-ups or companies established by the students during their study. ■ To register entrepreneurs student alumni. ■ To manage the entrepreneurship infrastructure and information system.	**HLIs Recommendation:** Assistant Vice Chancellor of Entrepreneurship/Division of Network and Linkages (DVC)

To drive the EIE, it requires a clear direction of governance at both the MOHE and HLIs levels.

MOHE through the Department of Higher Education (JPT) is recommended to be the custodian to develop and regulate any policy or guideline related entrepreneurship education. This includes to monitor and review the performance of |entrepreneurship agenda at the HLIs.

At HLIs level, the Centre for Entrepreneurship Development must have a clear direction and scope of duties to facilitate the student entrepreneurship development programmes and activities and ensure strong coordination with the faculties. Nonetheless, the ownership of the entrepreneurship academic programmes shall remain at the respective faculties of the HLIs.

C RECOMMENDATION : ENTREPRENEURSHIP TARGET

Table 5: Entrepreneurship Target

NO.	CATEGORIES	STUDENT ENTREPRENEURS (SE)	GRADUATE ENTREPRENEURS (GE)
1.	Business Entrepreneurship Programme (BEP) ■ 2u2i ■ Conventional mode	 90% 70%	 10% 30%
2.	Business-Related Programme (BRP)	30% - 40%	10%
3.	Non-BEP	20% - 30%	10%

Table 5 presents the suggested target for HLIs to produce number of student entrepreneurs (SE) and graduate entrepreneurs (GE) according to the three (3) categories of programmes (ie. BEP, BRP and Non-BEP).

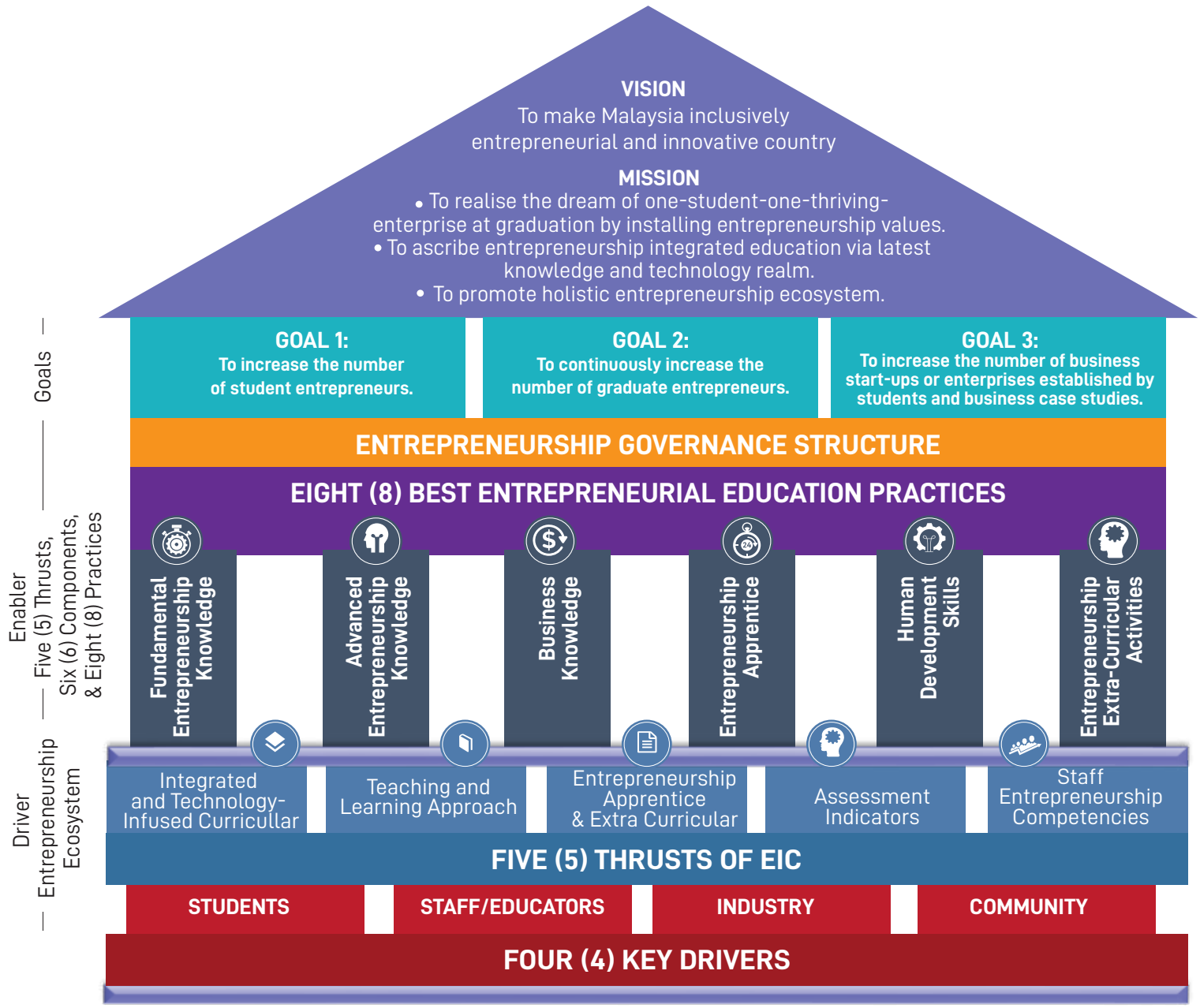
Students enrolled into 2u2i entrepreneurship programme are expected to establish their companies during their studies (SE) not less than 90% out of the total number of enrolment for BEP category. For BEP with conventional mode is expected to attain 70%.

While other students from the BRP and Non-BEP, HLIs are expected to attain the target between 20% to 40%.

In addition, HLIs should expect students who have graduated (GE) from their study in the three (3) categories (i.e. BEP, BRP and Non-BEP) to attain the target between 10% to 30% out of the total number of enrolment for each category.

EIE FRAMEWORK

EIE framework is a conceptual structure intended to serve as a support or guide for building entrepreneurship programmes, curriculum and activities at HLIs. The EIE comprises main drivers to support the Integrated Entrepreneurship Ecosystem (IEE) and the Entrepreneurship Integrated Curriculum (EIC) with eight (8) best entrepreneurial practices. It must be governed by a strong entrepreneurship governance structure at both MOHE/JPT and HLIs.



The outcomes of the Entrepreneurship Integrated Curriculum (EIC) that governs by an inclusive HLIs entrepreneurship ecosystem (IEE) is hoped to achieve the following:

- Institutions to offer more innovative and robust entrepreneurship programmes and activities that are aligned with the current trends in economic and business environment, and emerging technology.
- Stimulating educators, students and the society to venture into entrepreneurship pursuit.
- Strengthening the HLIs entrepreneurship governance, monitoring and facilitation programmes to stimulate graduates and accelarating the entrepreneurship enculturation process.
- Enriching the entrepreneurship innovation ecosystem through collaborative learnings - research, innovation and commercialisation projects involving various stakeholders and accelerating the development of entrepreneurship innovation centers, business learning factories, number of SMEs start-ups, and new companies establishment.
- Developing various Malaysian and global business and entrepreneurship case studies.
- Ensuring sustainability of student companies after graduation.
- Improving social well-being of the nation through job creations and income generation.

EIE drives for:

- **New Set of Knowledge, Skills, and Assessment**
  - BEP, BRP and Non-BEP
- **New Set of KPIs and Sustainability Measure for SE and GE**
  - Number of SE and GE
  - Number of start-ups/spin-off, number of innovation and commercialisation
  - Sales and revenue and other ROI measures
  - Social Return on Investment (SROI) Measure i.e. Jobs created, well being of society
- **Innovative and Robust Entrepreneurship Programme and Competent Educators, Case Study, Research and Innovation and Commercialisation.**
- **To Improve Facilitation Programme** eg. Malaysian Entrepreneurship Education and Standard (MEAS), Entrepreneurship Index for monitoring and performance review.

To realise the government's aspiration to produce well-balanced graduates and strengthening the entrepreneurship agenda of the country requires a concerted effort and coordination, designing and implementing sustainable strategies, and high commitment among various stakeholders and interest groups. Through this EIC, the national target to produce high number of student entrepreneurs and graduate entrepreneurs can be achieved. Hence, the education sector should endeavour entrepreneurship excellence to make Malaysia as the hub for entrepreneurship education.

08

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ABBREVIATIONS

AGE	Action Group of Entrepreneurship Council
AI	Artificial Intelligence
BEP	Business & Entrepreneurship Programme
BES	Business & Entrepreneurship Students
BIL	Business Industry Lecturers
BRP	Business-Related Programme
DKN	Dasar Keusahawanan Nasional 2020
DPK	Dasar Pembangunan Keusahawanan 2010
EA	Entrepreneurship Apprentice
EAP	Entrepreneurship Action Plan
EC	Extra-Curricular
EIC	Entrepreneurship Integrated Curriculum
EIR	Entrepreneurship-in-Residence
ESA	Entrepreneurial Sustainability Assessment
HIEPs	High Impact Educational Practices
HLIs	Higher Learning Institutions
IEE	Inclusive Entrepreneurship Ecosystem
IoTs	Internet of Things
IR4.0	Industrial Revolution 4.0
MEDAC	Ministry of Entrepreneurship Development and Cooperative
MOHE	Ministry of Higher Education
MSMEs	Micro Small and Medium Enterprises
NEP	National Entrepreneurship Policy 2030
Non-BEP	Non-Business & Entrepreneurship Programme
Non-BES	Non-Business & Entrepreneurship Students
ROI	Return On Investment
SMEs	Small Medium Enterprises
SULAM	Service Learning Malaysia-University for Society
TWEU	Top World Entrepreneurial Universities
UA	Universiti Awam
UIIN	University Industry Innovation Network

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