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## ABBREVIATIONS

<b>ALO</b>	: Alumni Liason Office
<b>APEX</b>	: Accelerated Programe for Excellence
<b>ASEAN</b>	: Association of Southeast Asian Nations
<b>ASHES</b>	: Academic Staff Higher Education Scheme
<b>ASTS</b>	: Academic Staff Training Scheme
<b>BJIM</b>	: Bahagian Jaringan Industri & Masyarakat
<b>CAATS</b>	: Centre for Advanced Analytical Toxicology Services
<b>CDAE</b>	: Centre for Development of Academic Excellence & Student Development
<b>CDH</b>	: Creative Design House
<b>CEMAC</b>	: Centre for Marine and Coastal Studies
<b>CETREE</b>	: Centre For Education, Training, and Research in Renewable Energy, Energy Efficiency and Green Technology
<b>CGPA</b>	: Cumulative grade point average
<b>CGSS</b>	: Centre for Global Sustainable Studies
<b>COR</b>	: Centre of Responsibility
<b>CPD</b>	: Continuing Professional Development
<b>CQI</b>	: Continuous Quality Improvement
<b>DRM</b>	: Disaster Risk Management
<b>GoT</b>	: Graduate on Time
<b>HEAA</b>	: Hal Ehwal Akademik & Antarabangsa
<b>HEBAT</b>	: Holistic, Entrepreneurial, Balanced, Articulate, Thinker
<b>HEPA</b>	: Hal Ehwal Pembangunan Pelajar & Alumni
<b>HUSM</b>	: Hospital USM
<b>INOR</b>	: Institute of Nano Optoelectronics Research and Technology
<b>KFA</b>	: Key Focus Area
<b>KPI</b>	: Key Performance Indicator
<b>KTP</b>	: Knowledge Transfer Program
<b>MEB (HE)</b>	: Malaysia Education Blueprint (Higher Education)
<b>MOA</b>	: Memorandum of Aggrement
<b>MOOC</b>	: Massive Open Online Course
<b>MOU</b>	: Memorandum of Understanding
<b>NGO</b>	: Non-Governmental Organisation

<b>NMR</b>	: Nuclear Magnetic Resonance
<b>OCW</b>	: OpenCourseWare
<b>OER</b>	: Open Educational Resources
<b>OLED</b>	: Organic Light Emitting Diode
<b>PAO</b>	: Pejabat Aset dan Operasi
<b>PiPPA</b>	: Pusat Inovasi dan Produktiviti Pentadbiran Awam
<b>PTJ</b>	: Pusat Tanggungjawab
<b>RCMO</b>	: Research and Creativity Management Office
<b>REDAC</b>	: River Engineering and Urban Drainage Research Centre
<b>RM</b>	: Ringgit Malaysia
<b>SBU</b>	: Small Business Unit
<b>SCL</b>	: Student-Centered Learning
<b>SEASN</b>	: South East Asia Sustainability Network
<b>SG</b>	: Strategic Goal
<b>SI</b>	: Strategic Initiative
<b>SOP</b>	: Standard Operating Procedure
<b>SSU-USS</b>	: Saya Sayang USM - USM Sayang saya
<b>T&amp;L</b>	: Teaching & Learning
<b>TEKS</b>	: Talent, Expertise, Knowledge and Skill
<b>TERamPIL</b>	: Teachers / Educators, Researchers, Practitioners & Leaders
<b>TVET</b>	: Technical and Vocational Education and Training
<b>UBE</b>	: University Board of Examination
<b>UNESCO</b>	: United Nations Educational, Scientific and Cultural Organisation

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# Foreword

## Chairman Board of Governors

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Universiti Sains Malaysia (USM) has come a long way since its humble beginnings in 1969 but the journey is far from over. We live in challenging and demanding times, hence the onus is on us to navigate this institution towards a brighter, better future. It is timely that we take stock of the status quo of USM and more importantly, help chart its way forward. This is the essence of this all important initiative, USM APEX 2020.

The management, running, and overseeing of a university is no easy task and we simply cannot do it alone without the assistance, co-operation, guidance and support of our stakeholders. The University stands with the community it serves, and has to associate and align itself with the industries that populate the environment in which it operates. In this context, USM APEX 2020 will not only act as a catalyst towards mapping the future of USM but it will also serve as a documented strategic plan that will facilitate participation of all relevant stakeholders towards becoming a cohesive, effective and synergistic working entity.

Challenges are always present, be they from within or from the external environment. Aware of the importance and significance of education, the Malaysian government has drawn up a new Malaysian Education Blueprint through which the government hopes to steer the population towards becoming a developed and high income nation by 2020. Challenges must be met with a collective front. As such, the Board of Governors, stands united with the top management of the University as well as faculty and staff, to create a formidable bond that can withstand the challenges that come our way. We must now look beyond the present to see what scenarios may lie ahead and prepare ourselves, to ensure that USM will always remain relevant, reputable and respected. How we weather these times is up to us, and USM APEX 2020 will afford us that crucial platform towards being prepared and ready to face any eventuality. I would like to convey sincere thanks, on behalf of the Board of Governors, to all parties involved for their tireless efforts and unwavering commitment, culminating in the development of USM APEX 2020. May the USM motto, "We Lead" continue to inspire us to greater heights.

**TAN SRI DATUK DR. ZULKEFLI A. HASSAN**  
Chairman  
USM Board of Governors



# Vice-Chancellor

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Higher education is expanding rapidly in Malaysia and globally with changes in the economic landscape and anticipated needs for the future. These changes present challenges to each institution of higher education that seeks to remain relevant and competitive. Higher education institutions therefore need to reassess their respective strategic directions and readjust planning and the implementation of such plans in facing various challenges and obstacles, be they anticipated or otherwise. Within this context, USM too is not spared from the need to look strategically to the future in order to remain competitive and continue to drive excellence, as well as to effectively counter challenges and obstacles faced in the near future and beyond.

USM APEX 2020 is our initiative which outlines the strategic direction of USM. The involvement of various parties, including the Board of Directors, corporate and industry leaders, top management officials of the University, academicians, administrators and students has resulted in the evolution of ideas leading to a holistic thought process in developing USM APEX 2020.

The spirit of teamwork, openness to ideas, views and comments, and inclusivity were among the important elements in realising a sound USM APEX 2020 for all, including future leaders of the University, to steer USM forth in its quest to remain relevant and competitive.

On behalf of the University, I would like to take this opportunity to extend my gratitude and utmost appreciation to all who have given their full commitment and cooperation throughout the process of realising USM APEX 2020 to ensure the continuity of USM into the future.

**PROF. DATO' DR. OMAR OSMAN**  
Vice-Chancellor

# Executive Summary

## USM APEX 2020 EXECUTIVE SUMMARY

### The Overriding Goal

With excellent talent, prominent research and values-driven institution as its anchor, USM is set to advance further towards becoming a globally recognized university. To achieve this, USM APEX 2020 is a comprehensive strategic plan that presents well thought out strategic objectives and realistic initiatives, and charts a clear pathway to achieve the intended goal of being a globally prominent, nationally relevant and value-driven institution by the year 2020..

### The Need

USM is the only Malaysian University conferred APEX status by the Malaysian Ministry of Higher Education since 2008. USM has been able to position itself to be a highly respected Higher Learning Institution nationally, regionally and globally. In the near future, USM will need to stand out as one of the most outstanding Malaysian universities in the world rankings..

In 2013, USM implemented its APEX Phase II strategic plan, encompassing 2013-2015. With the introduction of the National Higher Education Blueprint (Pelan Pendidikan Malaysia – Pendidikan Tinggi, 2015-2020) in April 2014, USM seeks to re-align its strategies, and be more focused towards achieving its vision. USM needs to transform assertively and vigorously to ensure its aspiration to be globally prominent and nationally relevant as one of the premier universities in Malaysia is achieved. In the QS World University Ranking 2015, USM placed in the top 100 for two fields, namely (1) Engineering and Technology, and (2) Social Science and Management. USM excelled in the

subject of Environmental Science in which it placed amongst the top 50 institutions in the world. By 2020, three strategic goals of research are (1) to be in the top 200 of Global Research Intensive Universities, (2) to be in the top 100 in 3 fields of disciplines, and (3) to be top 50 in 3 subjects of disciplines

### USM APEX 2020: Strategic Plan (2015-2020)

USM APEX2020 is a medium term Strategic Plan stretching over a period of five years beginning 2015 through to 2020. The plan is focused and based around three core pillars, namely talent, research and institutional development.

USM APEX2020 outlines a detailed and comprehensive plan with three Strategic Objectives (SO), 8 Key Focus Areas (KFA), 35 Strategic Goals (SG) and 281 initiatives to be implemented.

For each of the core pillars, strategic objectives have been developed and formulated. For every strategic objective, its key focus areas are identified.

1. Strategic Objectives (SO) and Key Focus Areas (KFA) are:
  - 1.1 Talent
    - Students
    - Staff
  - 1.2 Research
    - Global research prominence
    - National development
  - 1.3 Institutional development
    - Value
    - Finance
    - Sustainability
    - Governance

2. The Strategic Goals and Strategies of each SO and KFA are further specified as follows:

### 2.1 Talent

2.1.1 Students: Nurturing, developing and enhancing Graduates with HEBAT attributes

- Early talent scouting and improve enrolment and intake mechanism
- Improve student development policy
- Alumni mentoring
- Expand student international networking, mobility and exchange programs
- Inculcate strong values and ethical principles utilizing APEX core values.

2.1.2 Academic: To promote academic excellence

- Enhance academic programs with a competitive edge, utilizing curriculum and flagship programs
- Achieve excellence in teaching and learning
- Enhance global presence

2.1.3 Staff: Nurture globally competitive talent relevant to national needs, and able to compete internationally

- A clear and comprehensive policy
- Ensure that staffs' training are in line with USM's mission and vision.
- Constantly provides motivation and appreciation

### 2.2 Research

2.2.1 To enhance USM research eco-system for global research prominence

- Sustain and synergize three fields
- Sustain funding
- Optimized resources
- Strengthening cohort
- Ensure access to talent

2.2.2 To focus and intensify research that is relevant for national development

- Enhance knowledge and technology transfer
- Create competitive and innovative entrepreneurship ecosystem
- Become a national referral and repository centre for identified NKRA
- Enhance capital development to meet demands of local and global job market

### 2.3 Institutional Development

2.3.1 Values-driven institution: embedded with Rukun Nilai USM

- Ensure high performance and excellent talent inculcated with Rukun Nilai USM
- Towards good governance and effective communication
- Student excellence embedded with Rukun Nilai USM
- Empowerment of alumni grounded with Rukun Nilai USM

2.3.2 Finance: Transforming the financial system through optimization, saving and income (OSI).

- To be granted financial autonomy
- Restructure university businesses
- Initiate cost rationalization at all levels
- Generate income through various business activities.

2.3.3 Sustainability

- Acculturate sustainability mindset
- Develop institutional framework for sustainable development
- Implement sustainability agenda

#### 2.3.4 Governance: International benchmarking and good governance

- Improve USM's position as one of the top 10 universities in the Asia Pacific, in selected areas
- Achieve excellence in governance through autonomy empowerment
- Intensify internationalization, visibility and connectivity
- Ensure conducive environment and working culture to harness professional mindset
- Ensure the SSU-USS (Saya Sayang USM-USM Sayang Saya) is adopted by the university community.

#### Conclusion

Taking into consideration the challenges ahead, this strategic plan serves to chart the pathway and is set to drive USM to become a globally prominent, nationally relevant and values-driven excellent higher learning institution by 2020.





# Vision & Mission





# VISION

// Transforming Higher Education for a Sustainable Tomorrow //

# MISSION

// USM is a pioneering, transdisciplinary research intensive university that empowers future talents and enables the bottom billion to transform their socio-economic well-being. //

# Preamble

The landscape of higher education is dynamic and continually expanding. It requires Higher Learning Institutions (HLIs) to be adaptable in facing the changes in the current scenario whilst striving to achieve prescribed targets. The current direction of the University is thus based on the agenda of APEX Phase II together with the Research University agenda yet taking into account the targets of the Malaysian Education Development Plan (Higher Education) (PPPM-PT) and the 11th Malaysia Plan (RMK-11) respectively. As such, there is the need for a comprehensive strategic plan to be developed to ensure that USM remains relevant and competitive.

## Current Scenario

In 2007, USM was accredited by the Ministry of Higher Education as one of the nation's four Research Universities. These universities were targeted to become centres of excellence in focused research areas, to lead in the development of innovations at national level, develop world-class academic outputs, attract quality postgraduate students and create a conducive environment for research and innovation.

In 2008, the Malaysian Government announced that USM was selected to implement the programme called APEX (Accelerated Programme for Excellence). The APEX Phase I Programme has thus been implemented during the first five years until 2013, focusing on the formulation of ideas and strategies, and establishing a strong foundation to fulfil the agenda of achieving global recognition as a prestigious institution of higher learning.

As a result of APEX Phase I initiatives, which concluded in 2013, USM has achieved an improvement in the

quality and quantity of research and innovation, the number of PhD graduates produced, the quality of graduates and an increase in number of its centres of excellence.

APEX Phase II began in January 2014 with a timeframe for implementation that lasts until 2025. APEX Phase II is a continuation of the previous phase which focuses on efforts to accelerate USM's attainment of excellence and eminence at global level.

Then in March 2015, the Government launched the Malaysian Education Blueprint or MEB (HE) which consisted of 10 Thrusts. Upon comparison, it was found that almost 75% of the programmes in the APEX Phase II are in line with the thrusts of MEB (HE).

The 11<sup>th</sup> Malaysia Plan [RMK-11] (2016 – 2020) meanwhile is based on the Malaysian National Development Strategy (MyNDS) which focuses on people-based economic development and a capital-based economy, with the implementation of programmes relating to high-impact, fast-track execution projects which incur low costs for the government. Education is geared towards the 3<sup>rd</sup> Strategy of the RMK-11 which aims to increase the development of human capital for a developed country by emphasising on four elements, namely improving competency of the labour market to increase economic growth, transforming TVET (Technical and Vocational Education & Training) to fulfil the demands of the industry, improving the quality of education to increase students' outcome & institutional excellence, and enhancing life-long learning for skills development.

## General Challenges

There are a number of internal and external challenges faced by the University in realising the APEX Phase II and Research University agenda, MEB (HE) and RMK-11 aspirations in the current scenario.

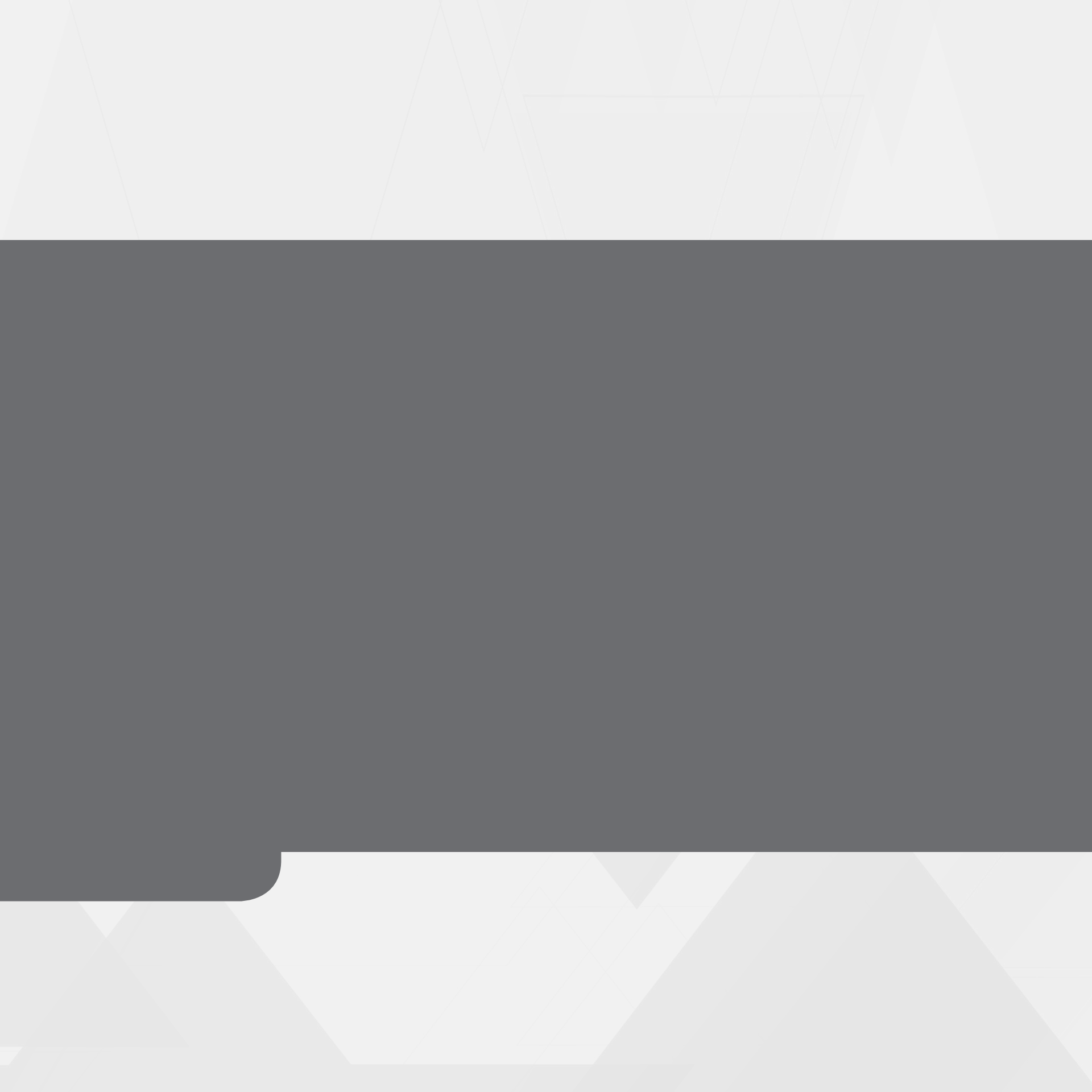
Among the internal challenges which have been identified are:

- i. to ensure financial sustainability for the University in order to remain competitive in terms of costs, competencies and income
- ii. to involve the University's talent including staff and students who will be relevant to national needs and the future global scenario
- iii. to ensure academic programmes place focus on STEM, transdisciplinarity and contemporary methods of teaching and learning
- iv. to ensure research outcomes are high impact
- v. to develop a more dynamic administration which is not only academically orientated

Besides these internal challenges, the University is also subject to external challenges among which are an environment of uncertainty, financial constraints, stiff competition and globalisation.

## Problem Statement

In the effort to remain relevant and competitive, the University needs to reconsider the best approaches to ensure its APEX Phase II, Research University agenda, Malaysia Education Blueprint (Higher Education) (MEB (HE)) and 11<sup>th</sup> Malaysia Plan aspirations are successfully realized in the face of challenges, changes and the current scenario.



# INTRODUCTION



## APEX University: An Overview

Universiti Sains Malaysia (USM) was selected to implement the Accelerated Programme for Excellence (APEX) in 2008. APEX is a fast track development programme to enable institutions of higher education to be recognised as world class entities. The programme aims to facilitate the university selected to be on an international level and also to motivate and help raise the level of excellence in higher education.

The APEX programme was identified as one of the most critical initiatives to help transform Malaysian Higher Education. As a result of this initiative, the Ministry of Higher Education requested all local public and private institutions to submit their proposals for consideration to be selected as an APEX University, with the prestigious APEX status being awarded to the successful one.

USM's mission in implementing the APEX program is to become a pioneering, trans-disciplinary and research-intensive university that empowers future talents and enables the bottom billions to transform their socioeconomic well-being.

"We aspire to lead and innovate in achieving excellence at the international level through advancing and disseminating knowledge and truth, instilling qualities that stress academic excellence and professionalism, developing holistic individuals and providing a strong commitment towards society's aspirations, the country's vision and universal aspirations". USM also incorporated the concept of sustainability to achieve its vision as an APEX university, which is: **"Transforming Higher Education for a Sustainable Tomorrow"**

This statement of the university's vision is based on its initial efforts to develop alternatives for the future. Sustainability was one of the five scenarios that encouraged Universiti Sains Malaysia to adopt the concept of the university in the garden. Universiti Sains Malaysia is described as a large tree. This tree is symbolic of knowledge while the tree roots are nurtured with care by professionals who are committed and dedicated. The branches in turn, symbolise the holistic development of mind without losing sight of a sustainable relationship with nature. There are several reasons why USM was selected to implement the APEX Programme:

1. Outstanding achievements in teaching and learning programs as well as research and innovation justify awarding Universiti Sains Malaysia the status.
2. Universiti Sains Malaysia is in the best position to achieve world-class university status. Universiti Sains Malaysia has also developed basic infrastructure to compete globally and to attract quality employees as well as local and international students.
3. Universiti Sains Malaysia is the only university to receive five-star recognition by the Malaysian Qualifications Agency (MQA) which makes
4. Universiti Sains Malaysia the best university in terms of research and contributions to the community.
5. Universiti Sains Malaysia's sustainability programme was acknowledged by the United Nations University's Regional Centre of Expertise (UNU-RCE) in 2005. Universiti Sains Malaysia has created a structured and systematic research programme in line with the integration between science and arts.

6. Since 2004, Universiti Sains Malaysia has rolled out plans for the future up to 2025. These plans outline a number of global reach features and also programs with sustainability-led concepts.
7. In 2007, Universiti Sains Malaysia was selected as one of four research universities in Malaysia by the Ministry of Higher Education.

As at 2015, two phases of the APEX program have been implemented in USM namely, Phase 1 (2008-2013) and Phase II (2014-2025). APEX Phase I was implemented in two sub-phases (1) Laying the foundation, and (2) Strengthening & Enhancement. Similarly, APEX Phase II will be conducted over two sub-phases comprised of (1) Excellence, and (2) Glory & Sustainability sub-phases (Figure 2).

These outstanding achievements prove that USM is able to continue to move forward towards becoming a world-class university.

Figure 1: APEX framework since 2008

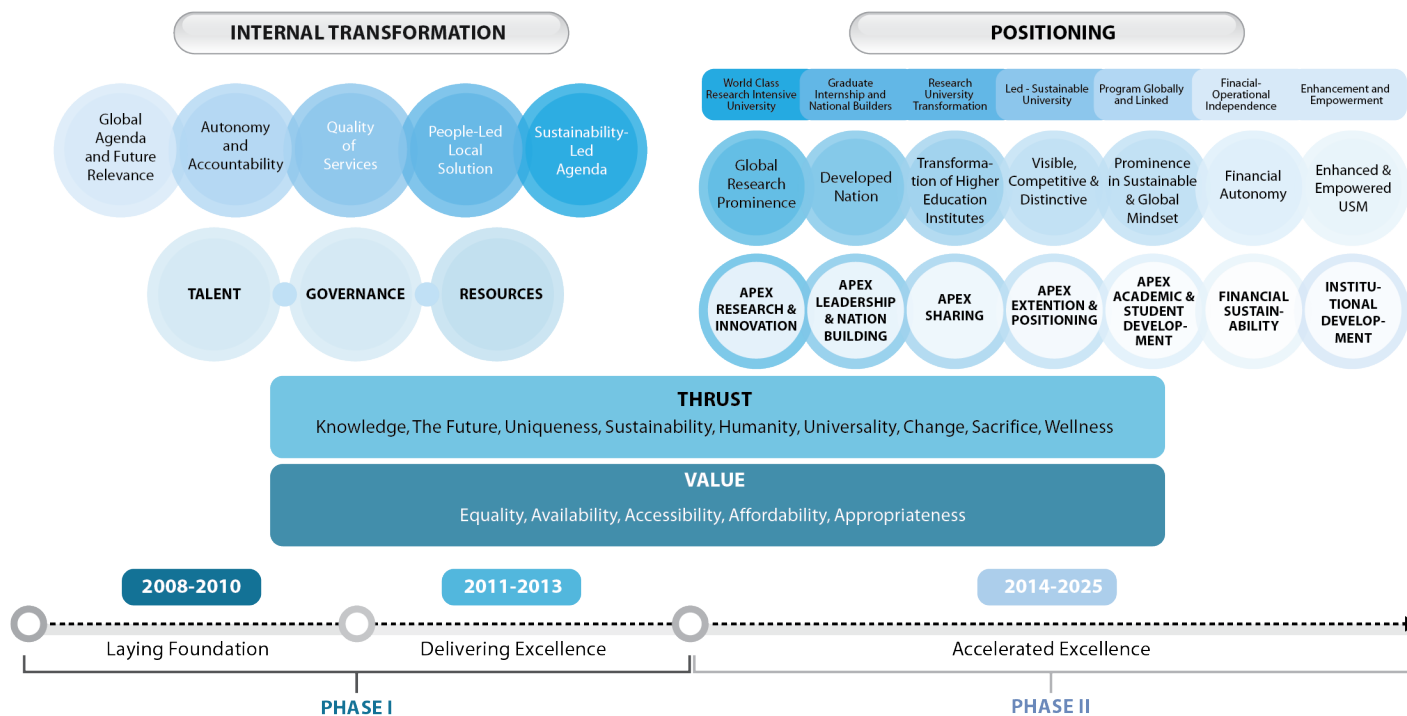
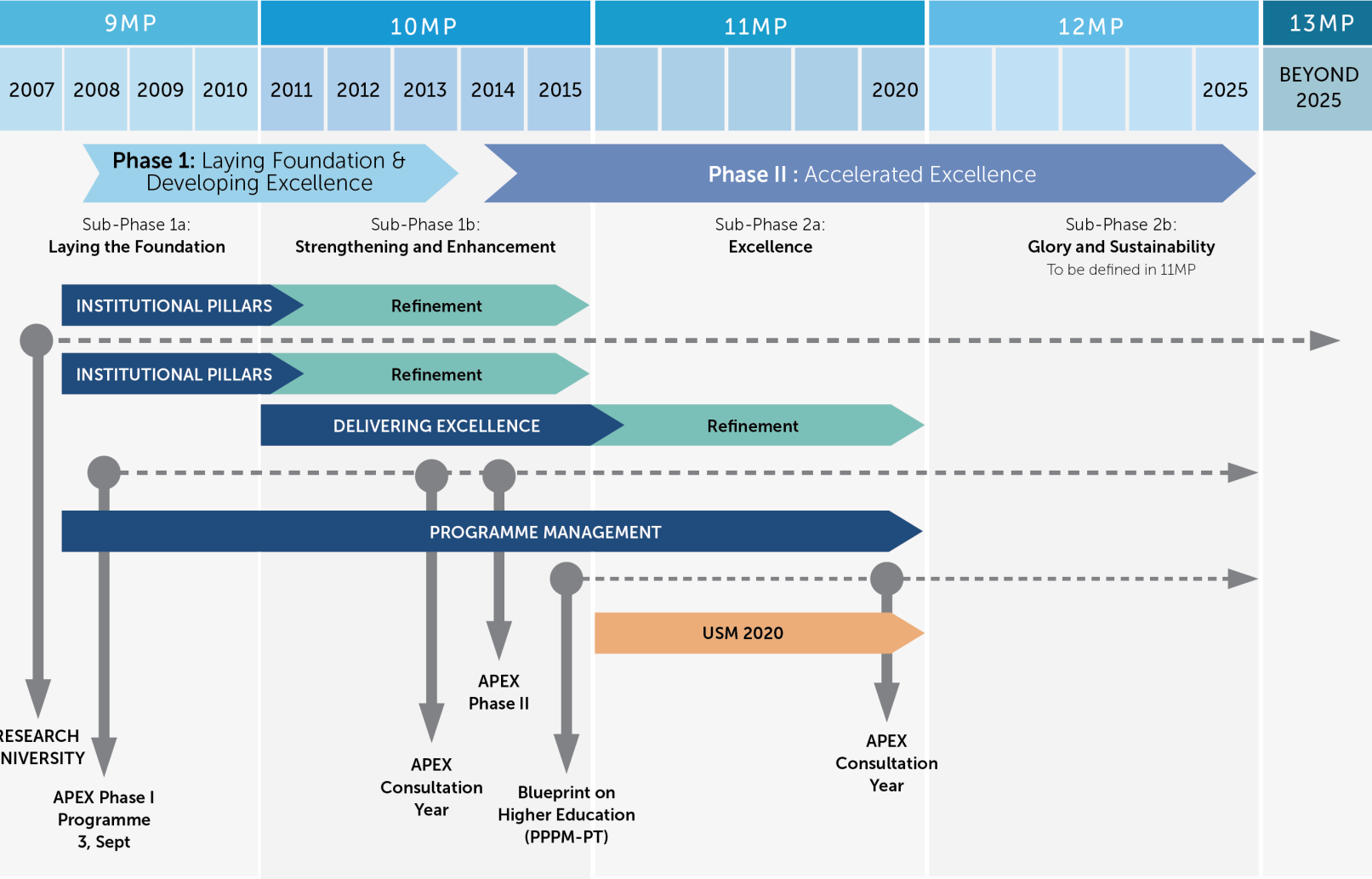
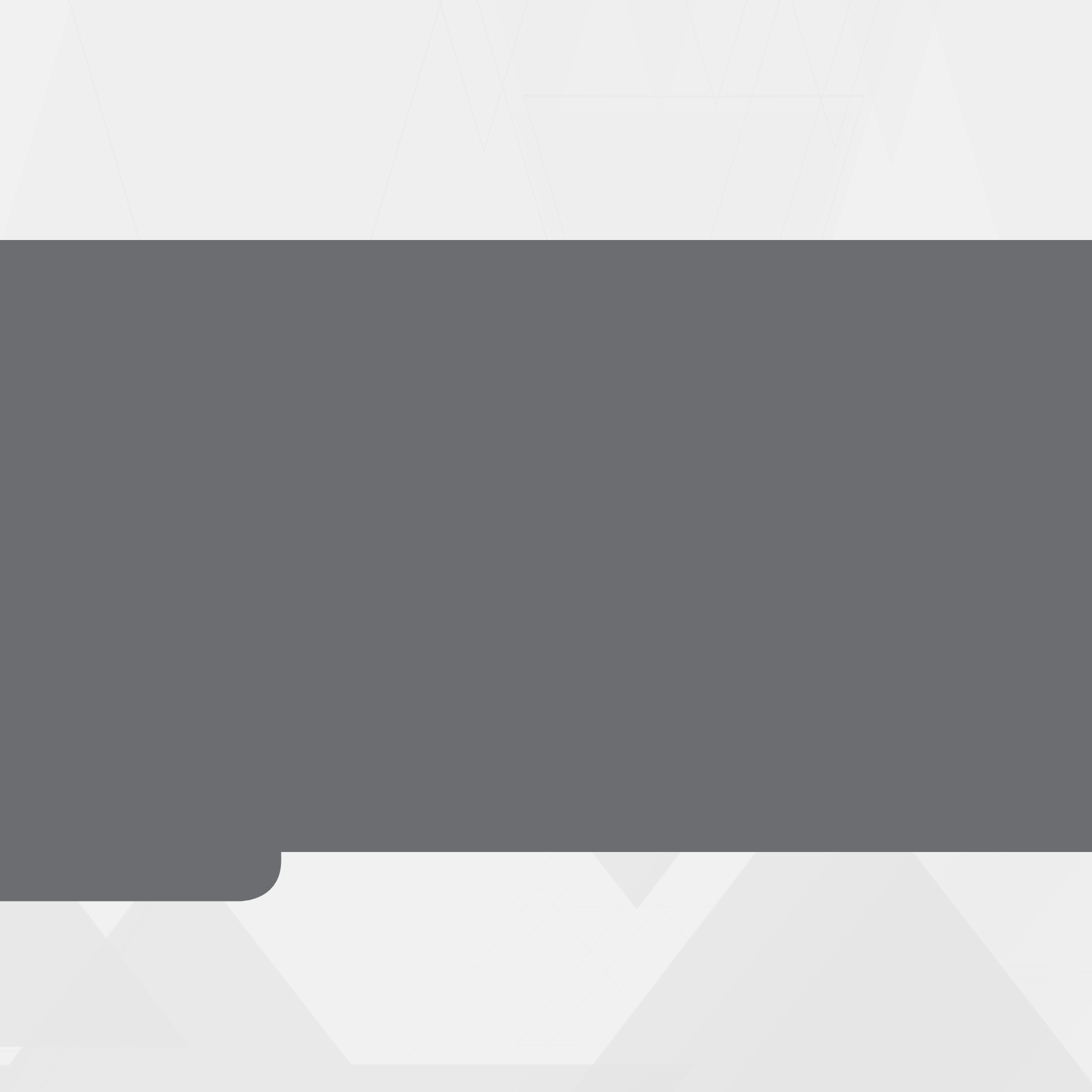


Figure 2: USM Journey: Transformation Roadmap









# REALIZING USM APEX 2020



## Overriding goals

### Global Excellence

One of the main drivers of current public policy is building a prestigious higher education (HE). Many governments have initiated policies to design and conceive elite or 'world-class universities' to support prestigious HE. At present, research outputs (e.g., publications and products) are thought to be the more prevalent factor in determining a 'world-class higher learning (HL) institution'. This shall likely change as the definition of 'global excellence' in a 'world-class institution' will grow and evolve over time.

The phrase 'global excellence' is not something new, and it has continued to adorn the cornerstone of HE. Unfortunately, it seems that the tides of time have continuously redefined 'global excellence'. The phrase is no longer limited to what has been achieved by currently dominant well-known universities which are largely driven by research agendas. Universiti Sains Malaysia (USM) is well aware of the 'global excellence' transformation, and has envisioned our institution to attain 'global excellence' as one of the goals of APEX 2020.

HE institutional 'global excellence' can be defined in many ways, but a more complete definition should encompass educational distinction and quality preservation from an epistemological, economic and social-moral point of view. HE institutional 'global excellence' denotes an international presence, a trademark brand of trust and a distinct identity of quality obtained and promoted through belief and faith of the HE institution's ethos in serving its vision and mission. The pillars of HE global excellence, meanwhile, has been extensively defined, namely as (i) leadership, (ii) policies and strategies, (iii) people and possessions management, (iv) partnership resources and entrepreneurial efforts, (v) process management, and last but not least, (vi) outcomes and achievements (Reuben, 2007). Although the given definition and the six pillars are perhaps not-exhaustive, it is seen by many as the foundation to achieve global HE excellence (Ong, 2012; Brusoni et al., 2012).

USM believes that 'global excellence' is more than just university rankings. The phrase also means more than just numbers to be flaunted. It is about USM being recognized by her peers, singled out due to unique, sought after initiatives and remarkable successes by other education establishments around the globe. It is also about demonstrating poise and aura, being accepted as at par with perhaps the best few HE institutions worldwide. The Malay adage 'Berdiri Sama Tinggi' aptly describes global prominence; achieving it connotes that USM stands as tall, being able to 'hold her own' against other established universities.

## National Relevance

The inception of APEX status to Universiti Sains Malaysia in 2008 marked a tremendous achievement of the university towards becoming an icon as the first sustainability-led university in the country. For a top university to be chosen, one of the essential criteria was of course, research and innovation. The acculturation process that started back during the 90's among USM's academic staff becomes the basis that strengthens the research capability of the university.

In order for the university to remain relevant to the country, the alignment of its research as well as the products that culminate from certain research works must be made clearly aligned to that which is required of national needs. Therefore, the university has closely adopted and streamlined its research goals with those tabled by the government through the Performance Management and Delivery Unit, PEMANDU. Nevertheless, monitoring of the success of the agenda is undertaken by the Ministry of Science, Technology and Innovation, MOSTI under the umbrella of the National Science and Research Council, (NSRC).

The establishment of the NSRC is mainly to push research institutions and institutions of higher learning together to boost research activities and innovations in bringing the country to a level similar to other developed countries in the year 2020. The concerted effort between these institutions will ensure that the goal is relevant in developing the nation.



From the nine key focus areas uplifted by the NSRC, Universiti Sains Malaysia has identified some of its strengths, which could foster national development and thus, aligned these with the agenda of the country. Based on the university's KPIs as well as from the areas identified by some world ranking agencies, Universiti Sains Malaysia has developed an impact through research publications as well as product commercialization in the areas of food security, water security, energy security, environment and climate change, medical & healthcare and transport & urbanization.

The goal or specifically the outcomes of each of the areas is mainly to establish a one-stop centre for research and development, in other words, higher institution centre of excellence, HiCOE and to ensure a sustainable contribution of S&T for use by the community as a whole. With these selected strengths, the university could then move towards becoming nationally relevant in its quest to achieve the APEX2020 agenda

Realizing the high expectation of stakeholders that an APEX university should achieve a higher global ranking compared to other higher learning institutes, USM is taking the initiative to drive its research programs towards global excellence. Taking into consideration that USM has several subjects and fields with potential to spearhead the research of the institution, several initiatives are developed to ensure that USM will emerge as a competitive research university. Based on the foundation that USM is providing service to the bottom billion, these empowering strands of research would positively transform lives, enabling Malaysia to compete and stay relevant globally.

## Values-Driven Excellence

Peters and Waterman (2006) have found that there is a close correlation between organizational culture and success, identifying 8 attributes of excellence, namely a bias toward action, close to the customer, autonomy and entrepreneurship, productivity through people, hands-on, value-driven effort, "sticking to the knitting", simple form, lean staff, and simultaneous loose-tight properties. Values of an organization, on the other hand, may refer to a set of "deeply held principles, ideals, or beliefs" that governs cultural behaviors (Barret 2006) and have an influence over the way the members of the organizations "think, feel and behave" (Schein, 2011). As such, in recent years, there has been a call for profit-making organizations to put values at the core of their business culture, emphasizing the importance of values-driven excellence and success

Although not a profit-making organization, an institution of higher learning can be seen as having a greater stake when it comes to upholding values due to its centrality in society in discharging its multi-functions in producing human capital, new innovations and novel ideas for the betterment of humankind. In order to be relevant and recognized in intense global competition and in an increasingly demanding society, an institution of higher learning has to strive for excellence driven by a set of strong values. This set of values governs the ecosystem of the institution of higher learning as it operates towards achieving excellence in four key areas which are governance, research and innovation, teaching and learning, and community engagement. This set of values acts as a reference point by its community as it covers aspects of work culture and institutional identity. This set of values is fully practised at all levels of its organization

as well as fully embraced by its community so that it becomes the attributes of excellence. In general, value-driven excellence in governance should foster and enhance a working culture and workforce steep in values, while at the same time be responsible for putting in place appropriate policies and programs to instill and disseminate this set of values to the university community. Being governed and driven by values ensures minimal outside interference, and guarantees autonomy without compromising credibility. Value-driven excellence in research and innovation should propel the university towards global recognition and relevance with its own distinct identity and attributes that speak of its grounding values. Value-driven teaching and learning will contribute in the creation of

human capital for the country that will not only excel academically, but one that is steeped in good values thus ready to face the challenges of the 21st century and be effective agents for change. Value-driven excellence in community engagement will ensure that value-driven strategies are adopted to address community issues that are mutually beneficial to the institution of higher learning and the community.

USM firmly believes and understands that only a value-driven institution can deliver a strong and sustainable impact both locally and globally. As such, the newly introduced “Rukun Nilai USM” outlines the core values upheld by USM in its quest for continuous excellence.



### The Strategic Management Model

The USM APEX 2020 Strategic Plan is based on the Strategic Management Model as shown below. Driven by vision and mission statements that highlight the University's strategic goal as an APEX university, the plan outlines strategic objectives that reflect the strategic targets of USM by 2020.

Figure 3: Strategic Management Model

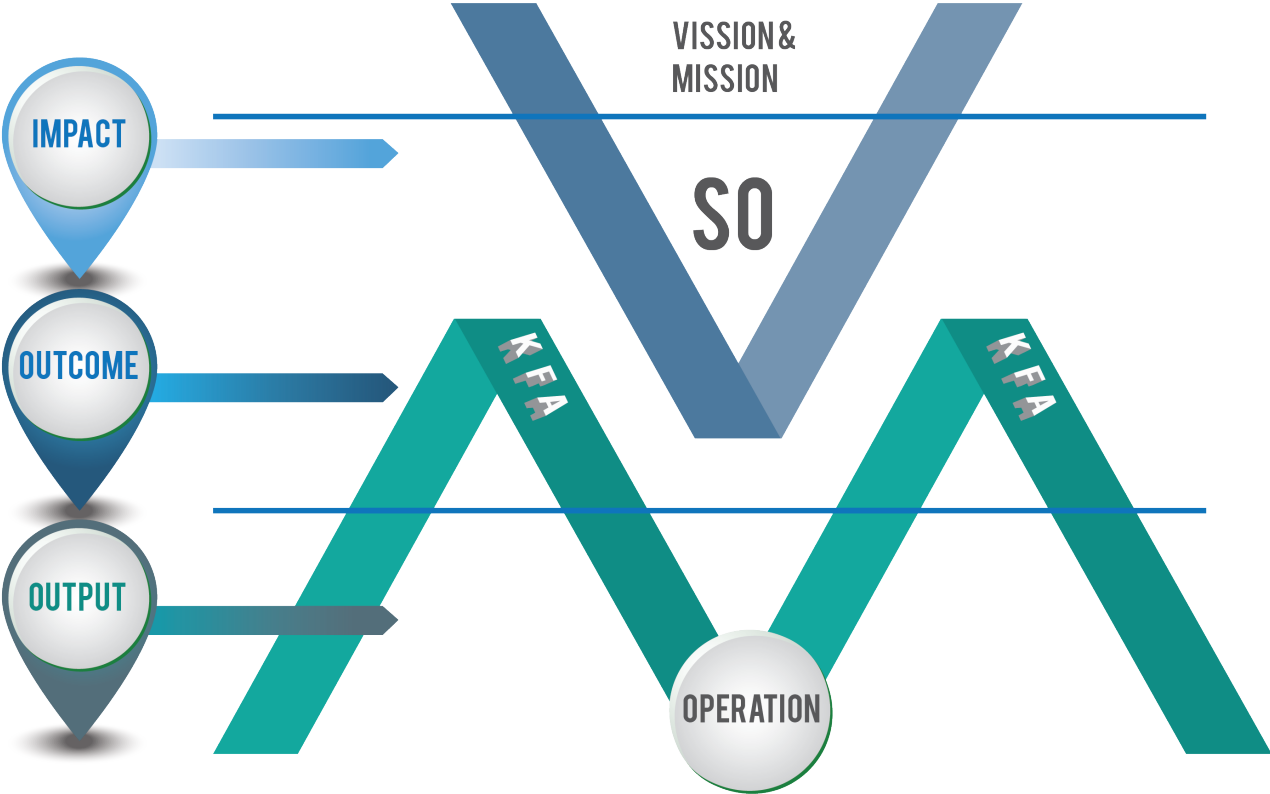




Figure 4: Refocusing KFA and APEX Pillar



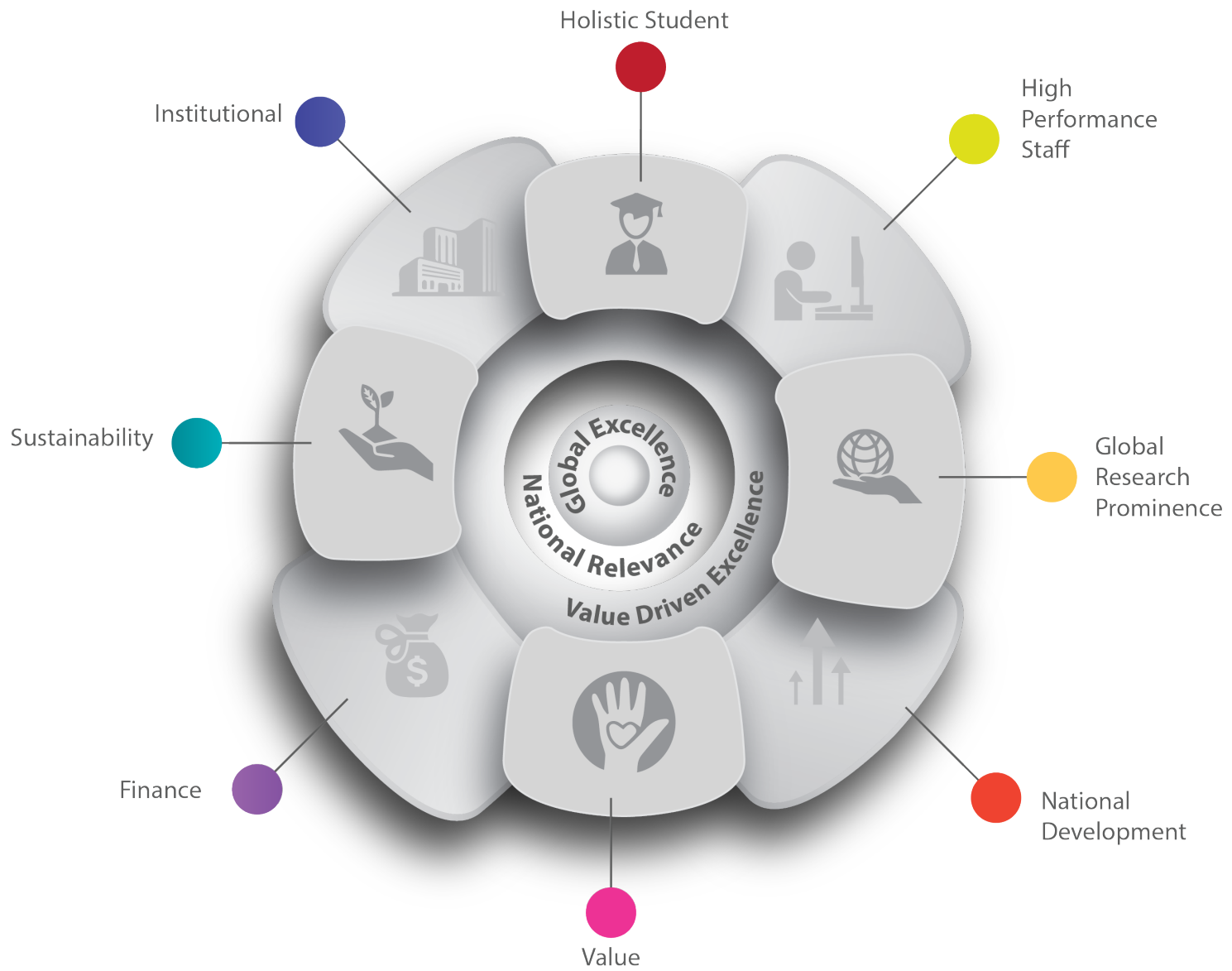
# Strategic Objectives

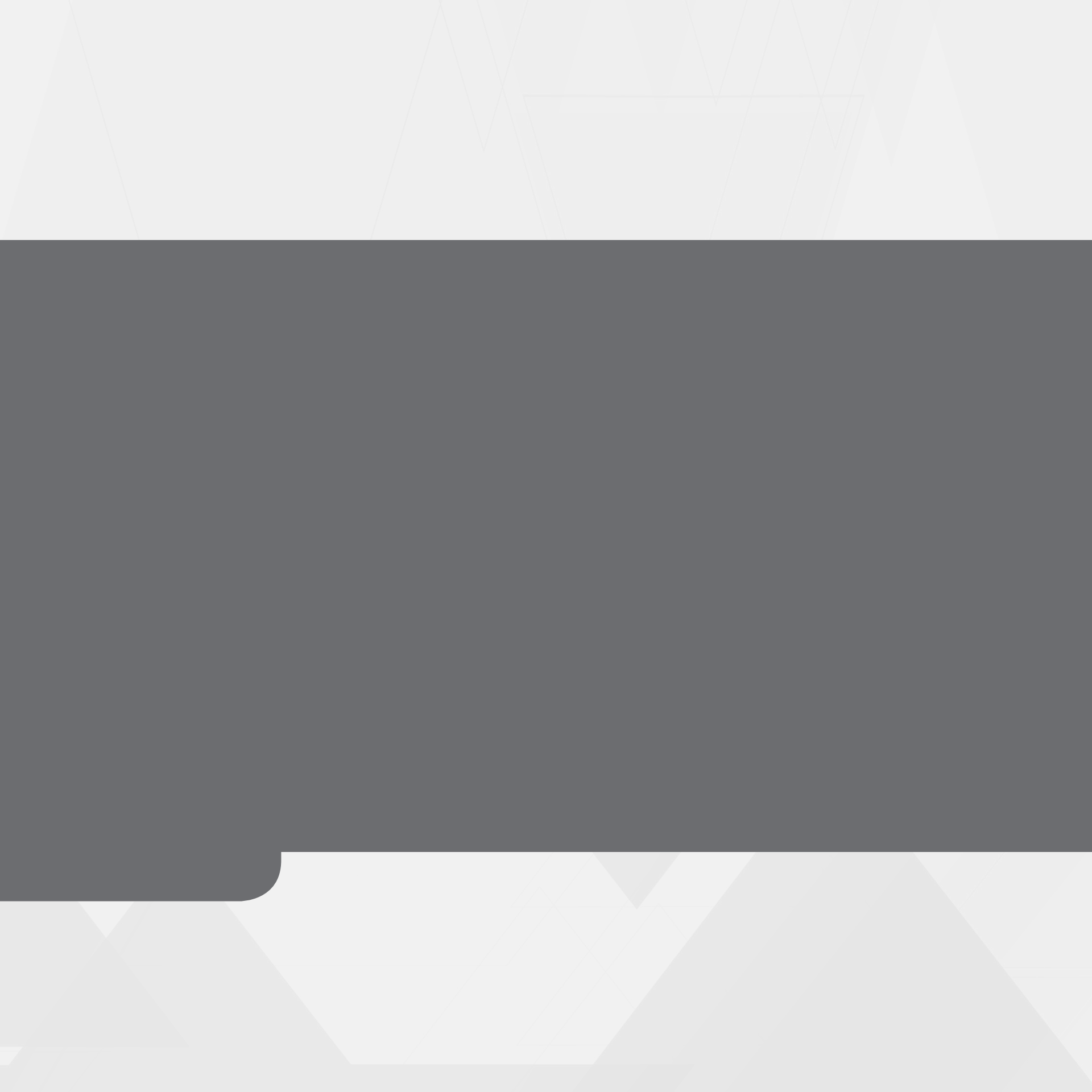
USM as an HLI, is cognizant of the overarching role of the academic ecosystem as an enabler of excellence. As such, USM APEX 2020 will be driven by three strategic objectives anchored up on talent, research and institution that focuses on Students, Staff, Global Research, National Development, Value, Finance, Sustainability and Governance.

Figure 5: USM APEX 2020 Strategic Objective



Figure 6: Achieving APEX Phase II SO Through 8 KFA







# The Road to USM APEX 2020: Implementation Plan



**TALENT**

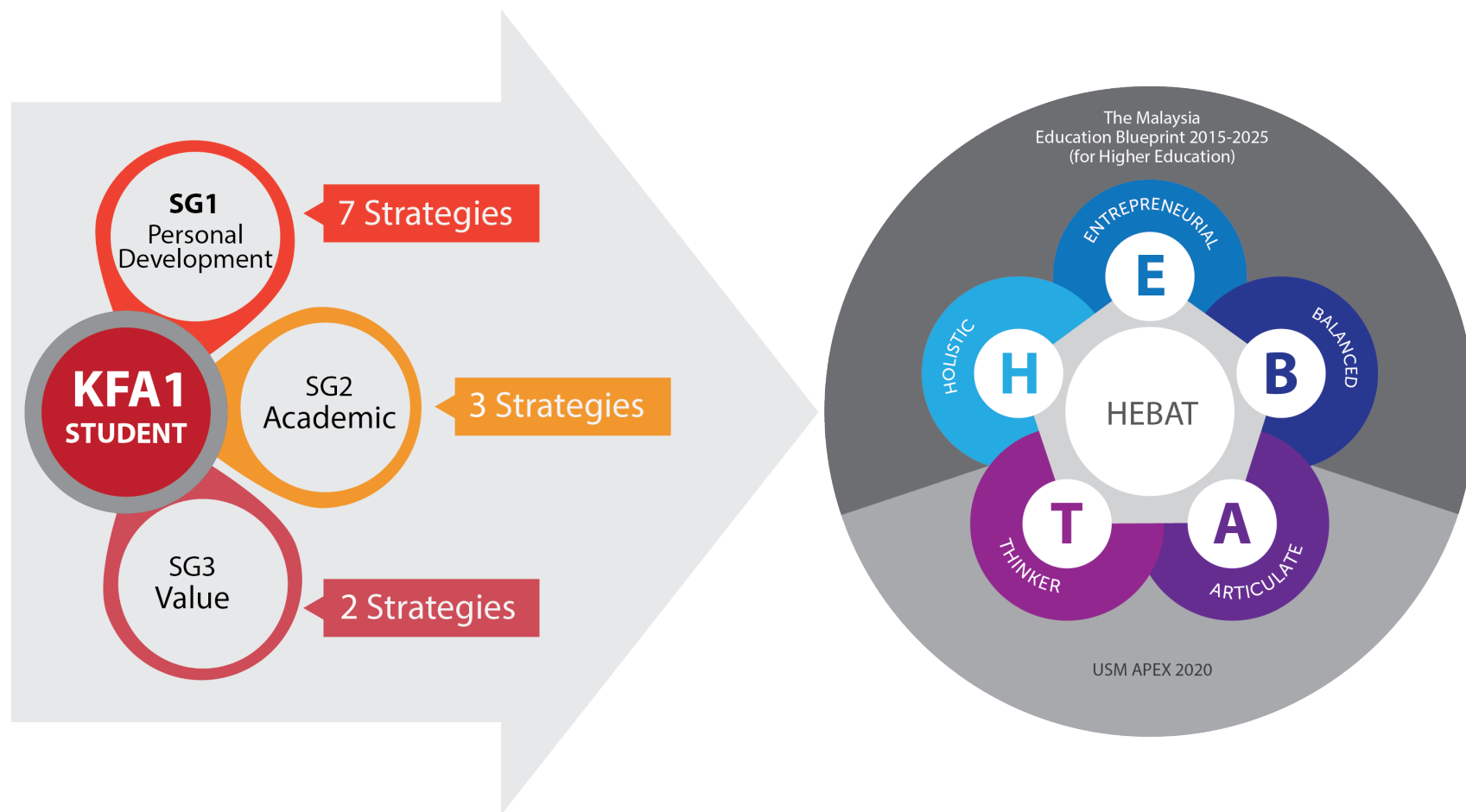
KFA 1



**Students**

One of the arguably more important outputs from Higher Learning Institutions (HLIs) is students. Graduates that have undergone learning and training at particular HLIs should display distinguishable traits that are in line with the establishment's mission and vision, and the country's needs. Universiti Sains Malaysia (USM) envisages producing graduates with a brand name of HEBAT (the word 'HEBAT' is Malay for 'great' or 'excellent'). Not only based on its literal meaning, HEBAT is an acronym

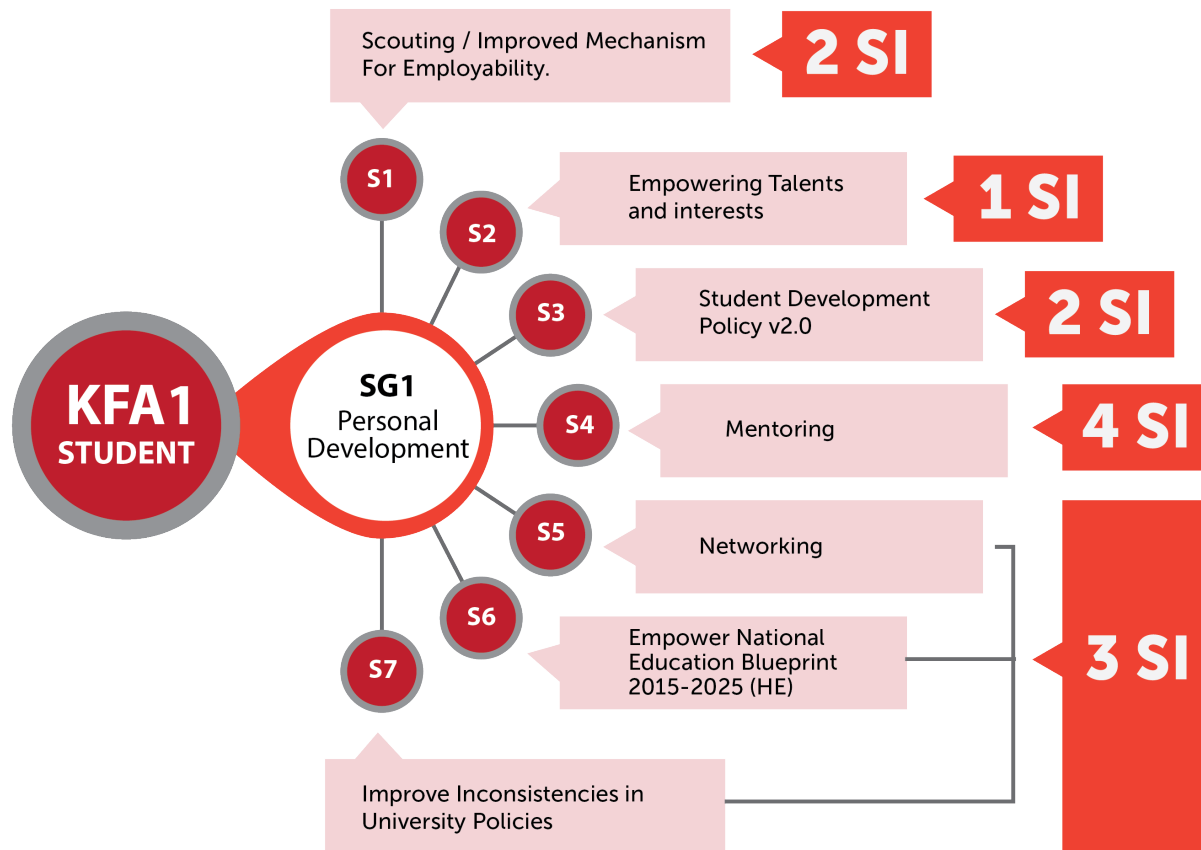
of qualities that shall distinguish USM products from others, which are: (i) Holistic, (ii) Entrepreneurial, (iii) Balanced, (iv) Articulate, (v) Thinker. USM APEX 2020's Key Focus Area One (KFA1) puts the spotlight on the subject of students, in order to mould such HEBAT graduates. A total of 3 Strategic Goals, supported by a total of 12 Strategies (Ss) were formulated for KFA1 (i.e., students). Each of the SGs, i.e., Personal Development (SG1), Academic (SG2) and Values (SG3) are detailed in the subsequent sections.





**“Universiti Sains Malaysia (USM) envisages producing graduates with a brand name of HEBAT (the word ‘HEBAT’ is Malay for ‘great’ or ‘excellent’). Not only based on its literal meaning, HEBAT is an acronym of qualities that shall distinguish USM products from others, which are: (i) Holistic, (ii) Entrepreneurial, (iii) Balanced, (iv) Articulate, (v) Thinker. ”**

Strategic Goal 1: Personal Development



The Malaysian Education Blueprint 2015-2025 (for Higher Education), presented by the Ministry of Higher Education (MOHE) has clearly outlined graduate traits. USM’s HEBAT is very much in-line with MOHE’s Blueprint guideline to produce Holistic, Entrepreneurial and Balanced graduates. MOHE underlines in the Blueprint that: ‘such holistic, entrepreneurial, and balanced graduates are a natural extension of the goal of the Malaysian basic education system to develop values-driven Malaysians’.

USM aspires to raise the bar further by having Articulate and Thinker as additional traits for her APEX 2020 graduates. The traits Articulate and Thinker echo the points inscribed in the Higher Education Blueprint 2015-2025, i.e., graduates with language proficiency, thinking skills and knowledge. Other traits mentioned in the Higher Education Blueprint 2015-2025, such as Leadership, Ethics, Morality and Spirituality are already embedded within USM’s motto, and APEX values as well as the thrusts.

**“...such holistic, entrepreneurial, and balanced graduates are a natural extension of the goal of the Malaysian basic education system to develop values-driven Malaysians’... USM aspires to raise the bar further by having Articulate and Thinker as additional traits for her APEX 2020 graduates.”**

To implant such traits in graduates, realise their potential and fulfill initiatives in HEBAT, concerted planning and all-encompassing forecasting in terms of the students' Personal Development need to be coordinated. To do

so, a total of 7 Strategies (S), supported by 12 Strategic Initiatives (SI) are identified to achieve SG1 (as outlined in the outcome column), as per the following table:

Table 1: Personal Development

Strategies	Strategic Initiatives	Outcome
(S1) Earliest possible scouting and improved enrolment/intake mechanism leveraging on employability.	SI(1). Early talent scouting (from Form 4). SI(2). APEX Junior Program.	Intensifying USM's capability to produce graduates with HEBAT attributes via Personal Development.
(S2) Empowering staff talents and interests.	SI(3). Certification/professional qualification for staff involved in student development activities and programs.	
(S3) An improved student development policy (a.k.a. Student Development Policy v2.0) that shall be reviewed periodically.	SI(4). The development of a new and improved student development policy, a.k.a. Student Development Policy v2.0 SI(5). Review for Student Development Policy v2.0 is to be every two years.	
(S4) Mentoring Through Famous/ Well-known Alumni.	SI(6). Get alumni to come back. Recognizing famous alumni to engage in student development and employability. SI(7). Renaming facilities (as per contributor) to entice alumni to return and assist the university. SI(8). To officially appoint well-known alumni as Adjunct/Fellows/Guest Personnel ( <i>Karyawan Tamu</i> ). SI(9). Exploiting well-known alumni and their international networking independently, to cultivate and nurture fresh, first-class graduate mentality.	
(S5) Using international networking to empower student potential.	SI(10). Expand and enhance student exchange programs. SI(11). Supporting entrepreneurial and volunteerism based activities SI(12). Amplifying student participation and organization with programs that are internationally recognized / accredited.	
(S6) Empower the National Education Blueprint 2015-2025 (Higher Education), with reference to the student development aspect.		
(S7) Reducing university policies which are inconsistent and less student centred.		

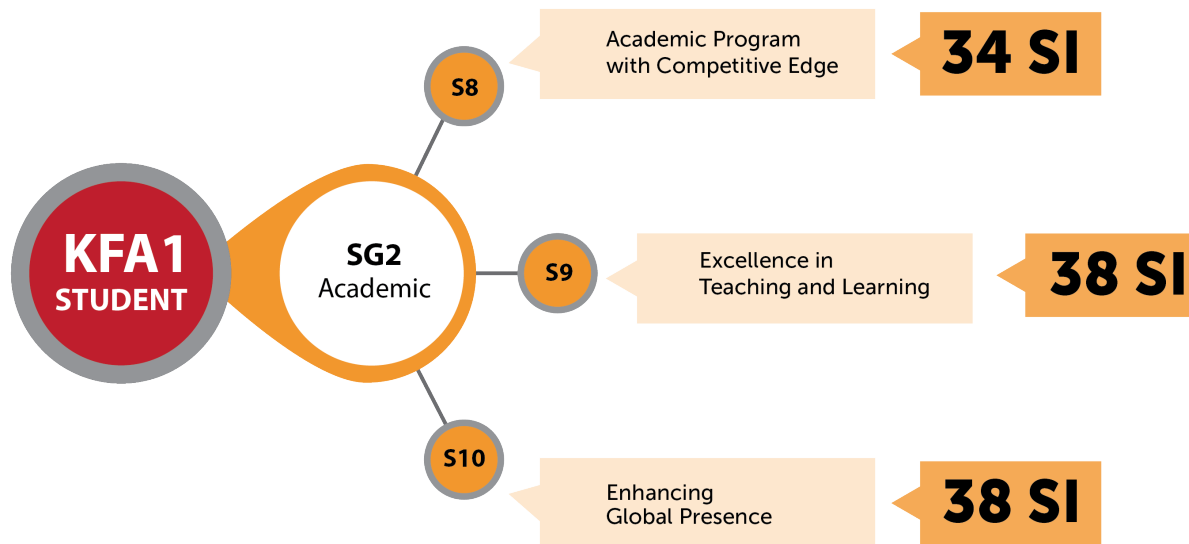
USM recognizes the necessity to invest in Personal Development to produce HEBAT graduates in order to stay relevant, sustainable and be ahead of her peers. Personal Development to produce HEBAT should not only be focusing on student training alone. As presented in the previous table, the 7 Strategies identified for HEBAT graduate's Personal Development emphasizes equal but high competitive standards (by controlled intake mechanism), utilizes and manages staff and student talents, and fully incorporating and further improving current policies (e.g. APEX core values, USM's Student Development Policy, etc.).

Although Personal Development is known as a lifelong process and it is given that it is impossible for one to attain complete Personal Development, USM believes that a few fundamental aspects (key facets) should be emphasized in making sure that SG1 is achievable. Amongst others, providing the ambiance, seeding the basic initiative for continuity and having excellent means and resources, to inculcate Personal Development, were identified as key facets. The final touch is that USM's HEBAT graduates must embrace the National Identity, having pride in Malaysia and an understanding of the country's aspirations to cater for National Relevance and needs. Furthermore, these HEBAT graduates should also be at par with other graduates worldwide, boosting Malaysia's HE Global Prominence with Values Driven Excellence.



**// The final touch is that USM's HEBAT graduates must embrace the National Identity, having pride in Malaysia and an understanding of the country's aspirations to cater for National Relevance and needs. Furthermore, these HEBAT graduates should also be at par with other graduates worldwide that boosting Malaysia's HE Global Prominence with Value Driven Excellence. //**

Strategic Goal 2: Academic



The second Strategic Goal (SG) is achieving Academic Excellence. USM, being an HLI, acknowledges that the academic segment cannot be discounted, and should be given ample attention. At one point of time, Academic Excellence was about getting the better grades, or performing very well on academic related tasks. The definition has since evolved. Nowadays, especially in USM, Academic Excellence (SG2) does not only encompass the ability to excel in scholastic activities. It is also about providing an ambiance that supports a culture to maximize the intellectual capability, capacity and skills in service to

humanity. Achieving Academic Excellence should be at the hearts of all educators. HLIs with Academic Excellence should be able to provide graduates with unique, rich and deep learning experiences that promote lifelong learning, continuous teaching and constant reflection to impart wisdom through knowledge.

There are 3 Strategies with 110 Strategic Initiatives, drawn up to support the Academic Strategic Goal (SG2) with an expected outcome, presented in a table as follows:

Table 2: Academic

Strategies	Strategic Initiatives	Outcome
<p><b>(S8) Academic Program with Competitive Edge, utilizing curriculum and flagship programs.</b></p>	<p><b>Curriculum:</b></p> <ul style="list-style-type: none"> <li>Curriculum leverages on market relevance, high employability rate, academic quality, personal development planning (PDP).</li> </ul> <p><b>(i) market relevance</b></p> <p>SI(13). Offering internationally recognized academic programmes.</p> <p>SI(14). Offering accredited academic programmes.</p> <p>SI(15). Offering programmes that are broad based.</p> <p>SI(16). Offering programmes that ensure employability of graduates 6 months upon graduation.</p> <p>SI(17). Participation of industry panels of advisors (ICAPS) in the curriculum development and program assessment.</p> <p>SI(18). Knowledge transfer by industry practitioners in teaching and learning activities.</p> <p>SI(19). Academic &amp; Industry partnership to support practical education &amp; training to aligned career development.</p> <p>SI(20). Offering of the Finishing School Programme incorporating industry in teaching and learning activities focusing in matching the need between industry and university.</p> <p><b>(ii) high employability rate</b></p> <p>SI(21). Utilize English as a medium of delivery.</p> <p>SI(22). Ensure that academic programmes inculcate competencies in soft skills (teamwork, communication, critical thinking and problem solving, ethics), and cross-cultural learning.</p> <p>SI(23). Programme branding</p> <p>SI(24). Development of an alumni database for programme assessment and to formulate strategies to enhance the value of graduates.</p> <p>SI(25). Promote international training exposure for Malaysian students through exchange programme industrial training, attachment, joint research.</p>	<p>Enabling USM to produce HEBAT graduates that is a product of Academic Programs with Cutting Edge, Excellent Teaching and Learning with Improved Global Presence.</p>

Table 2: Academic (cont'd)

Strategies	Strategic Initiatives	Outcome
	<p><b>(iii) academic quality</b>            SI(26). Implement a common OBE for USM.            SI(27). Ensure awareness of OBE in the development of programmes            SI(28). Implement OBE as mode of delivery for teaching and learning (course, programme outcome and programme objectives).            SI(29). Implementation of OBE at least according to MQA standards.            SI(30). Ensure that the OBE Quality Management Systems is operational for all academic programmes.            SI(31). Ensure that academics are qualified, academically, professionally and market relevant.            SI(32). Provide professional training through knowledge transfer courses.            SI(33). To conduct a workshop in the offering of broad based sustainability awareness for all programs.</p> <p><b>(iv) personal development planning (PDP)</b>            SI(34). Creating opportunities in developing plans for PDP (personal, professional and social skills)            SI(35). Ensure volunteerism through University Community Engagement (UCE) projects.            SI(36). Ensure that academic programmes inculcate humanistic and holistic values.</p> <p><b>Flagship programs:</b></p> <ul style="list-style-type: none"> <li>flagship programs enhance sustainability programs, cluster-based research areas, global dimensions in academics.</li> </ul> <p><b>(i) sustainability programs</b>            SI(37). Establish the School of Sustainability Science            SI(38). Incorporate a Global dimension in the curriculum design for sustainability in the Undergraduate and Postgraduate programme.            SI(39). Establish International Linkages with Universities for offering joint-programmes with universities renowned for their sustainability programmes</p>	<p>Enabling USM to produce HEBAT graduates that is a product of Academic Programs with Cutting Edge, Excellent Teaching and Learning with Improved Global Presence.</p>



Table 2: Academic (cont'd)

Strategies	Strategic Initiatives	Outcome
	<p><b>(ii) cluster-based niche areas</b>            SI(40). Development of Flagship programs from each Cluster-based Niche Area programs with national and international accreditations.            SI(41). Establishment of Cluster-based Niche Area programs:            1. Heritage Science Program.            2. Community Sustainability Management Program.            3. Data Science            4. Sustainable Tourism</p> <p><b>(iii) global dimensions in academics.</b>            SI(42). Establishing flagships programs that have high impact &amp; competitive (because of quality, niche, viability, relevance) with global dimensions.            SI(43). Establishing an International Partnership Platform for Joint Academic Programme.            SI(44). Offering International offshore programme.            SI(45). Establishing a Bottom Billion International Academic Initiative as a “seeding” initiative of an academic program.            SI(46). Ensuring the internationalisation of current program.</p>	
<p><b>(S9) Achieving excellence in Teaching and Learning</b></p>	<p><b>Pedagogy</b></p> <ul style="list-style-type: none"> <li>to aid the advancement of student-centred learning, technology based delivery, academic assessments, linking research to learning, enhanced open distance learning (ODL).</li> </ul> <p><b>(i) student-centred learning</b>            SI(47). Conduct training programs for staff and students to create awareness on all aspects of SCL (curriculum design, delivery assessment and supervision).</p> <p><b>(ii) technology-based delivery</b>            SI(48). Adopt various teaching and learning strategies that can include:            1. e-Learning            2. Blended learning            3. Flipped classroom            4. Open Educational Resources (OER)/Open CourseWare (OCW)/Massive Open Online Course (MOOC)/Institute of Open Learning(IOL).</p>	<p>Enabling USM to produce HEBAT graduates that is a product of Academic Programs with Cutting Edge, Excellent Teaching and Learning with Improved Global Presence.</p>

Table 2: Academic (cont'd)

Strategies	Strategic Initiatives	Outcome
	<p>SI(49). Training of staff (how, why and what)</p> <p><b>(iii) academic assessments</b>            SI(50) Increase percentage of coursework for selected courses to accommodate SCL.            SI(51). Employ a variety of assessment methods (Higher Order Thinking Skills HOTS).</p> <p><b>(iv) linking research to learning</b>            SI(52). Provide grants for action research (i.e., research on teaching practice).            SI(53). Embed research output in syllabus.</p> <p><b>(v) enhanced open distance learning (ODL).</b>            SI(54). Deliver the flagship program in the form of OCW/MOOCs.            SI(55). Increase the number of courses related to sustainability and offered in the form of OER.</p> <p><b>Improved administrative and academic process</b></p> <ul style="list-style-type: none"> <li>To create enhanced teaching and learning policy, quality assurance processes, Recruitment / Retaining Best Talent, Academic Staff Job Specifications, Selective Students Intake &amp; Entrance Examination, Academic Administrative Machinery</li> </ul> <p><b>(i) Teaching and Learning Policy</b>            SI(56). Revise all policies: written and non-written (undergrad &amp; postgrad).            SI(57). Improve and enforce the current policies to meet university's vision and mission.</p> <p><b>(ii) Quality Assurance Processes</b>            SI(58). Revise and re-compile all policies: written and non-written and make it available on-line.            SI(59). Monitoring the quality assessment.</p>	<p>Enabling USM to produce HEBAT graduates that is a product of Academic Programs with Cutting Edge, Excellent Teaching and Learning with Improved Global Presence.</p>

Table 2: Academic (cont'd)

Strategies	Strategic Initiatives	Outcome
	<p><b>(iii) Recruitment / Retaining Best Talent</b>            SI(60). Recognize teaching by adopting and adapting the differentiated career pathways as described in the Malaysia Education Blueprint 2015-2025 (Higher Education).            SI(61). Implement a rigorous recruitment system to identify the best talent to join university as an academic.            Academic Staff Job Specifications            SI(62). Develop a well defined job specification and description on a competency-based talent framework.</p> <p><b>(iv) Selective Students Intake &amp; Entrance Examination</b>            SI(63). Intensive promotion (radio, TV, billboard etc.).            SI(64). Entrance exams</p> <p><b>(v) Academic Administrative Machinery</b>            SI(65). Improve institutional repository databases.            SI(66). Improve student academic support through CDAE.            SI(67). Consolidate and simplify admin process, e.g., UBE.</p> <p><b>Academic Support System</b></p> <ul style="list-style-type: none"> <li>To augment Learning Space for SCL, Technology for Learning, library, laboratory facilities, Professional Development, Physical, Emotional, Intellectual, Spiritual and Social Well Being, One-Stop Centre at Desasiswa(s), Mentoring, Global Classes.</li> </ul> <p><b>(i) Learning Space for SCL</b>            SI(68). Upgrade classroom facilities to enable and facilitate SCL            SI(69). Holodeck Design &amp; conceptualise Experiential Learning.</p> <p><b>(ii) Technology for Learning</b>            SI(70). Upgrade bandwidth (500MBx2).            SI(71). Provide WiFi access (50 users per hotspot).            SI(72). Establish cloud application.            SI(73). Establish mobile technology – software and hardware.</p>	<p>Enabling USM to produce HEBAT graduates that is a product of Academic Programs with Cutting Edge, Excellent Teaching and Learning with Improved Global Presence.</p>

Table 2: Academic (cont'd)

Strategies	Strategic Initiatives	Outcome
	<p><b>(iii) Laboratory Facilities</b> SI(74). Create centralized, integrated labs, ensuring equipment sustainability.</p> <p><b>(iv) Professional Development</b> SI(75). Train the trainers</p> <p><b>(v) Physical, Emotional, Intellectual, Spiritual and Social Well Being</b> SI(76). Profiling the lecturers and students. SI(77). Initiate faculty club in every campus.</p> <p><b>(vi) One-Stop Centre at Desasiswa(s)</b> SI(78). Create tools for academic assistance, e.g., support on how to write reports, CV writing, presentation, public speaking. SI(79). Implement creative methods to enhance individual and group learning experiences. SI(80). Enable students to unlearn wrong and obsolete information. SI(81). Coaching.</p> <p><b>(vii) Mentoring</b> SI(82). Lecturer -Student. SI(83). Peer Mentoring.</p> <p><b>(viii) Global Classes.</b> SI(84). Conduct programs</p> <ol style="list-style-type: none"> <li>1. Gain International Visibility and Positioning by leveraging on Branding and Positioning, Networking and Internationalization, Exchange Programmes, Academic Collaborations.</li> <li>2. Quality Assurance using tools and indications such as CQI, Quality Assurance Processes, Accreditation, Rating and Ranking, Global Prominence.</li> <li>3. Recognitions and Incentives using Teaching Track Promotion and Annual Appraisals.</li> </ol>	<p>Enabling USM to produce HEBAT graduates that is a product of Academic Programs with Cutting Edge, Excellent Teaching and Learning with Improved Global Presence.</p>

Table 2: Academic (cont'd)

Strategies	Strategic Initiatives	Outcome
<p><b>(S10) Enhancing global presence</b></p>	<p><b>Gain International Visibility and Positioning by leveraging on:</b></p> <p><b>(i) Branding and Positioning</b>            SI(85). Increase the number of double degree program with renowned universities -single or crossed discipline.            SI(86). Obtain international recognition (accreditation/ licensing) for selected programs.            SI(87). Invite / Employ International experts from high ranking universities.            SI(88). External examiner for thesis / program assessor from high ranking universities.            SI(89). Increase publicity through multimedia.            SI(90). Send ASTS/ ASHES candidates to high ranking Universities</p> <p><b>(ii) Networking and Internationalization</b>            SI(91). Increase in networking based activities such as short visit/ attachment / sabbatical leave.            SI(92). Increase in networking through seminars, conferences and training.            SI(93). Increase in the numbers of participation in education fairs/ road show.            SI(94). Enhance alumni networking through Alumni Liaison Officer (ALO).            SI(95). Increase number of membership in international association.            SI(96). Forge close relationships with international embassies in Malaysia.            SI(97). Forge a close relationship with Education Malaysia.</p> <p><b>(iii) Exchange Programmes</b>            SI(98). Increase the number of students (inbound &amp; outbound).            SI(99). Increase the promotion to USM students (road show).            SI(100). Increase the funding for exchange programme.            SI(101). Increase the number of MOA/MOU for exchange programs.</p>	<p>Enabling USM to produce HEBAT graduates that is a product of Academic Programs with Cutting Edge, Excellent Teaching and Learning with Improved Global Presence.</p>

Table 2: Academic (cont'd)

Strategies	Strategic Initiatives	Outcome
	<p><b>(iv) Academic Collaborations</b>            SI(102). Through research –share of expertise, resources, and facilities with International Companies, agencies &amp; Universities.            SI(103). Increase the number of double degree program with renowned universities.            SI(104). Academic staff exchange, mainly on teaching.</p> <p><b>Quality Assurance using tools and indications such as:</b></p> <p><b>(i) CQI</b>            SI(105). Lecturers</p> <ol style="list-style-type: none"> <li>1. Training to increase competency in the preparation of exam questions and teaching, with assessments after the training.</li> <li>2. Understanding the tools for CQI, i.e., Blue Ocean, Pareto Chart, etc.</li> <li>3. Certification and recognition to academic staff, producing competent lecturers, utilizing available aids for teaching and assessment.</li> <li>4. To review conditions for confirmation of position. New academic staff shall undergo a number of phases.</li> <li>5. To review criteria for promotion for current staff to improve competency of lecturers</li> </ol> <p>SI(106). Curriculum</p> <ol style="list-style-type: none"> <li>1. Enforce curriculum review every 5 years, mechanism from the Quality Centre, to be tabled in JPA meeting, including:               <ul style="list-style-type: none"> <li>• Internal examiner’s report.</li> <li>• Alumni feedback.</li> <li>• Employability assessment.</li> </ul> </li> <li>2. Measure program competency.</li> <li>3. To cease or to rebrand, or to reengineer, or to combine or merge programs with no demand.</li> <li>4. Election of Senate Members in accordance to cohort (0-5 years, 6-15 years, &gt;15 years).</li> </ol>	<p>Enabling USM to produce HEBAT graduates that is a product of Academic Programs with Cutting Edge, Excellent Teaching and Learning with Improved Global Presence.</p>

Table 2: Academic (cont'd)

Strategies	Strategic Initiatives	Outcome
	<p><b>(ii) Quality Assurance Processes</b></p> <p>SI(107). Compliance to the local body for quality assurance– to empower the Quality Unit and use information technology to measure, manage and build obedience. These processes are needed to reduce academic interference and, to switch these responsibilities to the Registrar’s Office, or the Supervisory and Academic Support Office.</p> <p>SI(108). Lecturer intake process</p> <ol style="list-style-type: none"> <li>1. Process to increase the quality of new lecturers, interview, mock teaching and research proposals.</li> <li>2. Measurement of final quality is the impact towards community and the society, universally.</li> </ol> <p>SI(109). Student intake process</p> <ol style="list-style-type: none"> <li>1. The CGPA is not the primary indication of student quality. Thus, minimum CGPA for intake should be increased to 3.00.</li> <li>2. To review the current student intake process-CGPA, interviews (show interest).</li> <li>3. To review the interview process. Type of questions, responses in terms of language, oral communication, character and etiquette, and positive attributes of USM.</li> <li>4. Written exams for all new students.</li> <li>5. To review of the current tutor system.</li> <li>6. To review the student to academic staff ratio, especially in tutorials/labs.</li> <li>7. Suggestion to re-establish USM’s matriculation program-present opportunity to the bottom-billion community and the Bumiputeras.</li> </ol>	<p>Enabling USM to produce HEBAT graduates that is a product of Academic Programs with Cutting Edge, Excellent Teaching and Learning with Improved Global Presence.</p>

Table 2: Academic (cont'd)

Strategies	Strategic Initiatives	Outcome
	<p>SI(110). Infrastructure quality and support</p> <ol style="list-style-type: none"> <li>1. Ensure e-learning infrastructure to be complete-suggestion to have tablets for each students, pre-loaded with reference books and past-year exam questions.</li> <li>2. Ensure lecture hall facilities are of quality.</li> <li>3. Infrastructure upgrading of lecture halls (4 Main Campus, 2 Engineering Campus, 2 Health Campus).</li> <li>4. To make available a series of exercise modules aimed towards increasing competency of administrative and support staff.</li> </ol> <p><b>(iii) Accreditation, Rating and Ranking</b></p> <p>SI(111). Ensuring that there shall be no lack of follow-ups on audit reports/CQI.</p> <p>SI(112). Focus on the quality of Teaching and Learning (T&amp;L).</p> <p>SI(113). Centre of Responsibility shall not focus on KPI alone, as this will affect the quality of T&amp;L.</p> <p>SI(114). Building a culture of excellence, value driven with passion in self development.</p> <p>SI(115). Improve the quality of research and scientific writing amongst academic staff. To organize workshops on the preparation of research proposals, grant applications, and publications.</p> <p>SI(116). Centre of Responsibility to nominate 2-3 undergraduates for undergraduate research grant, and they shall later present the results (alike Honours track in the US).</p> <p><b>(iv) Global Prominence</b></p> <p>SI(117). International recognition through certification and international accreditation.</p> <ol style="list-style-type: none"> <li>1. Excellent Centres of Responsibility to have top-100 ranking in terms of area/program/service.</li> <li>2. Database repositories in locally related areas, e.g., Studies on Penang, etc.</li> <li>3. Grant open access to all USM publications.</li> <li>4. A good working mechanism to promote student activities related to bottom-billion and sustainability.</li> <li>5. Sabbatical/attachments to lesser developed countries, e.g., Myanmar (under sponsorship from various sources).</li> </ol>	<p>Enabling USM to produce HEBAT graduates that is a product of Academic Programs with Cutting Edge, Excellent Teaching and Learning with Improved Global Presence.</p>



Table 2: Academic (cont'd)

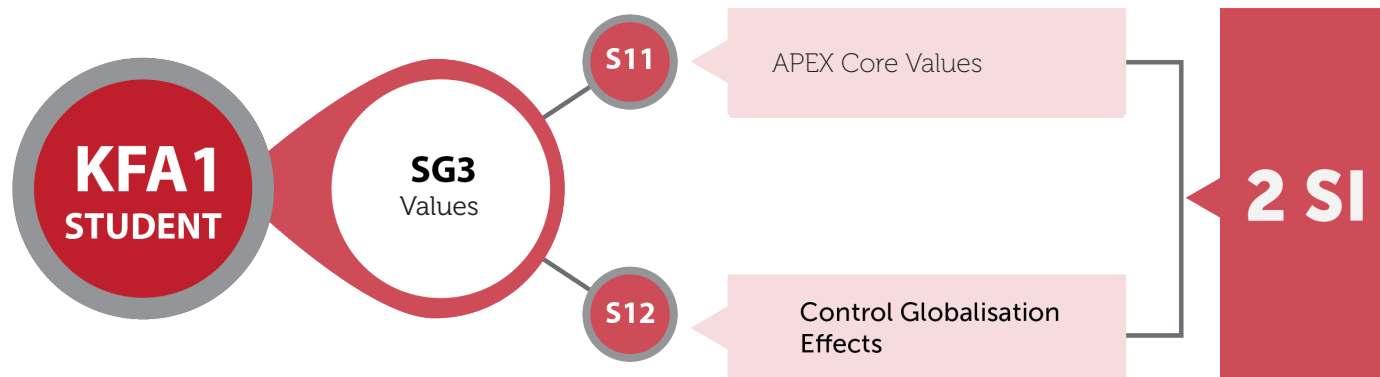
Strategies	Strategic Initiatives	Outcome
	<p><b>Recognitions and Incentives using</b></p> <p><b>(i) Teaching Track Promotion</b></p> <p>SI(118). Creating a teaching and supervision promotion track (additional Clinical track for Medical and Dentistry academic staff).</p> <p>SI(119). Creating a special committee to adapt the current promotion criteria with more emphasis given to teaching and supervision.</p> <p><b>(ii) Annual Appraisals</b></p> <p>SI(120). Creating recognition for teaching and supervision at Center of Responsibility level, based on 360 degree assessment (i.e., student, staff, Dean).</p> <p>SI(121). Varying recognition categories, e.g., teaching innovation, teaching engagement with the community/other Centers of Responsibility, income generation etc.</p> <p>SI(122). Graduate on Time-Incentive to the Academic Staff.</p>	<p>Enabling USM to produce HEBAT graduates that is a product of Academic Programs with Cutting Edge, Excellent Teaching and Learning with Improved Global Presence.</p>

It is clear that the Strategies identified to support the Academic SG in the previous table are aligned to the program quality and delivery (i.e., cutting edge program content and improved teaching and learning, T&L), and an indication of the program's quality (i.e., global prominence). In short, the strategies are drawn in such a way to identify various academic components and tools to enhance the possibility to produce HEBAT

graduates that not only caters for national needs alone but also fulfils international requirements, plus being positively driven by values of excellence. These HEBAT graduates can be USM's ambassadors at the global level, but remain as the leading in the local scenario, with distinguishable values and traits, which comply with Global Prominence, National Relevance and Value Driven Excellence.

**“ ... identify various academic components and tools to enhance the possibility to produce HEBAT graduates that does not only cater for national needs alone but fulfils the international requirements, plus being positively driven by values of excellence... ”**

## Strategic Goal 3: Values



The final Strategic Goal for KFA1 is SG3, which is yielding HEBAT graduates with values and sense of belonging. SG3 completes the loop to accomplish the yield of students that creates HEBAT graduates. While Personal Development (SG1) and Academic (SG2) Specific Goals emphasized on USM's effort to be as providing and warmly accommodative to her scholars, the third Specific Objective (SG3), i.e., Values, proposes that graduates should be reflective of positive values gained through their unique, satisfying and rewarding academic journey in USM. It is a dream for any HLI, an aspiration that, in the end, these

graduates shall reciprocate, by staying 'intimate' to their respective almae matres and the (country in general). Students' development of driven positive values and a sense of belonging is key to their success in higher education, and is arguably most closely related to the teaching and learning experience during their University Life. Such values and sense of belonging does not only attract strong alumni links; it can be a direct measure of satisfaction, which translates into much important feedback, which, in the building of a premier, world-class institution.

**“ ... graduates should be reflective of positive values gained through their unique, satisfying and rewarding academic journey in USM. It is a dream for any HLI, an aspiration that, in the end, these graduates shall reciprocate, by staying ‘intimate’ to their respective almae matres ... ”**

Table 3: Values

Strategies	Strategic Initiatives	Outcome
<p><b>(S11) Utilizing APEX core values to bridge gaps and to strengthen the true identity of USM graduates.</b></p> <p><b>(S12) Controlling effects of globalisation: reduce disparity of ability, skill and talent of future USM graduates and bridging the racial gap.</b></p>	<p>SI(123). Mandatory training through Pimpin Siswa Lestari 1 and 2 for all undergraduates.</p> <p>SI(124). An integration formulae for student based clubs and societies.</p>	<p>Producing HEBAT graduates with positive values and sense of belonging to the country.</p>

On a broader scope, each and every individual lives their lives based on certain qualities that define their lives. The qualities could be self-made, family-made, society-made or out of one's experience. These qualities are also known as traits. USM's HEBAT-branded graduates display various traits (i.e., Holistic, Entrepreneurial, Balanced, Articulate and Thinker) that reflect distinction. These HEBAT traits, meanwhile, are expected to be driven by the APEX Values of USM (namely, Quality, Equality,

Availability, Accessibility, Affordability, Appropriateness). HEBAT graduates are positively driven by APEX values, echoing the soul of value-driven excellence in catering to HEBAT graduates.

The need to invest as soon as possible to instill values along with a sense of belonging within the student body is well supported in the literature. Arguably, the most impactful approach is by first recognizing the well-

**“... it is about more than producing HEBAT graduates with sense of belonging. It is about having graduates with life-long affinity of USM and the country.”**

known alumni as a role model, and getting them to be a part of the student experience, at an exterior level (names and contributions promoted to current students) and a closer, personalized level (as voluntary teaching stuff, Adjuncts, Speakers etc.). Such opportunities will provide engaging learning experiences, mentorship awareness and access (in terms of time and space) to motivational and support services, fostering a student-institution bond that shall later prosper into an alumni-

university relationship. An alumni-USM relationship is much sought after; it is about more than producing HEBAT graduates with sense of belonging. It is about having graduates making USM, their second love/home. This will create HEBAT graduates with values matching Global Excellence, however, with enough attachment and sense of belonging to be relevant Nationally, and are driven by Positive APEX values.





# TALENT

## KFA 2



Staff



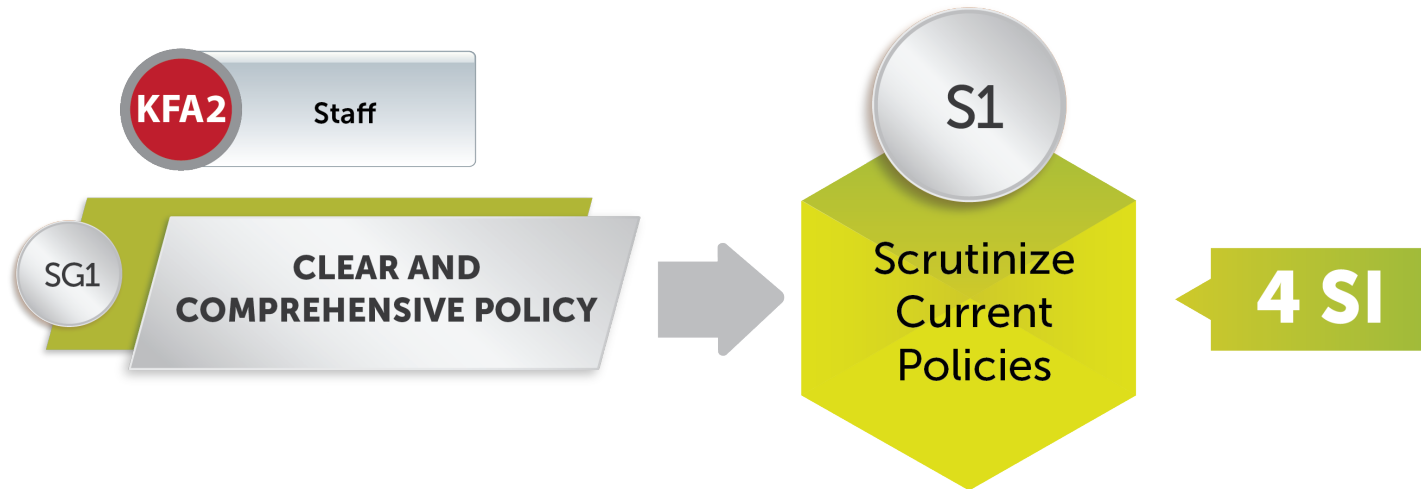


What arguably runs a typical HE institution is her staff. At the cellular level, staff accomplishments are collectively the HE institution's performance. With that in mind, one would agree that having High Performance Staff is a prerequisite in the quest to become a world-class HLI. High performance staff is thus formulated to be USM's KFA3 for APEX 2020, containing 3 Strategic Goals (SGs) and 3 Strategies (S). Each of the Strategic Goals, namely, A Clear and Comprehensive Policy (SG1), Improved Training (SG2) and Promotion/Recognition (SG3) are detailed in the following sections.

**"At the cellular level, staff accomplishments shall collectively indicate the HLI's performance."**



Strategic Goal 1: A Clear and Comprehensive Policy



A policy is a collection of governing principles that establishes a particular course of action; it defines authority, responsibility, and establishes guidelines for the organization to adhere to, in carrying out its functions and responsibilities. It is understood that policies are formulated to smoothen procedures and action. However, there are instances when

policies (for example, overlapping with one another, incomplete or ambiguous) tend to hinder proceedings, causing course of action to be not implementable, creating confusion plus delay, and displaying a negative aura of incompetency within an organization. This demonstrates that a clear and comprehensive policy is extremely important in any establishment.

**“... policies are formulated to smoothen procedures and actions... there are instances when policies tend to hinder proceedings... creating confusion plus delay... displaying a negative aura of incompetency... a clear and comprehensive policy is extremely important...”**

A total of 1 Strategy (S), supported by 4 Strategic Initiatives (SI) are identified to achieve SG1 of KFA3 (i.e., having Clear and Comprehensive Policies, to support and nurture High Performance Staff) as per the following table:

Table 4: Clear and comprehensive policy

Strategies	Strategic Initiatives	Outcome
(S1) To scrutinize the current policies, especially on staff intake, retention and exit.	SI(1). To improve the current policy on staff intake. SI(2). To be involved in talent scouting. SI(3). To improve current policies on staff retention (payable / non-payable). SI(4). Harmonisation of tasks for such policies.	1.1 A new or improved policy on staff intake, talent scouting and staff retention, which is comprehensive and clear.

USM believes that the current policies within the institution (relating to nurturing High Performance Staff) are very much in place, although reviews and improvements to suit current aspirations need to be done. The more critical policy reviews are perhaps focused on staff intake, retention and exit. Such policies should be harmonised, and clarified, to ensure a simple strategy, i.e., all members of the organisation are aware of their rights and responsibilities. Policies related to staff intake should also include talent scouting and perhaps head hunting. The expected outcome of a clear and comprehensive policy is of

much benefit towards creating a pool of staff which is superior in performance with USM at heart. Successful implementation to improve current policies shall not only result in a team with increased numbers of excellent staff; it also results in improved university performance in a whole, advantageously positioning USM worldwide in terms of Global Prominence. By doing so, USM as per the motto of 'We Lead', shall be leading the charge for National Relevance (in the local front) for continuous staff policy improvement that promotes Value Driven Excellence.

**“Successful implementation to improve current policies on staff intake, retention and exit shall not only result in a team with increased numbers of excellent staff; it also results in improved university performance in a whole, advantageously positioning USM worldwide...”**

Strategic Goal 2: Improved Training



It is a given that many employees and employers see training to be an integral aspect in the building of high performance staff. Many employers see training as an important tool to improve employee skill, capability and orientation, giving positive effect to the organisation in a whole. However, improper or poorly planned training can lead to work delay (due to staff attending training) and displays only minute changes in staff attributes (little impact of training). Meanwhile, some staff that are initially interested in training become demotivated because they are not selected for one, or because training is sometimes very expensive.

A successful institution does not only thrive in successfully training employees. The institution should scrutinize on the possibility of good training plans, methods and content. Whilst training delivery is seen as key, defining what constitutes acceptable training quality by setting clear training targets and aims is equally important. Availability of training sessions, feedback from participants and staff evidence of applying what is gained from training sessions is also important and relevant to chart training needs and further improvements for the future.

**‘Whilst training delivery is seen as key, defining what constitutes acceptable training quality by setting clear training targets and aims are equally important.’**

Taking these issues into account, a single Strategy (S), with a matching single Strategic Initiative (SI) is identified by USM to accomplish SG2 of KFA3, as per the following table:

Table 5: Improved training

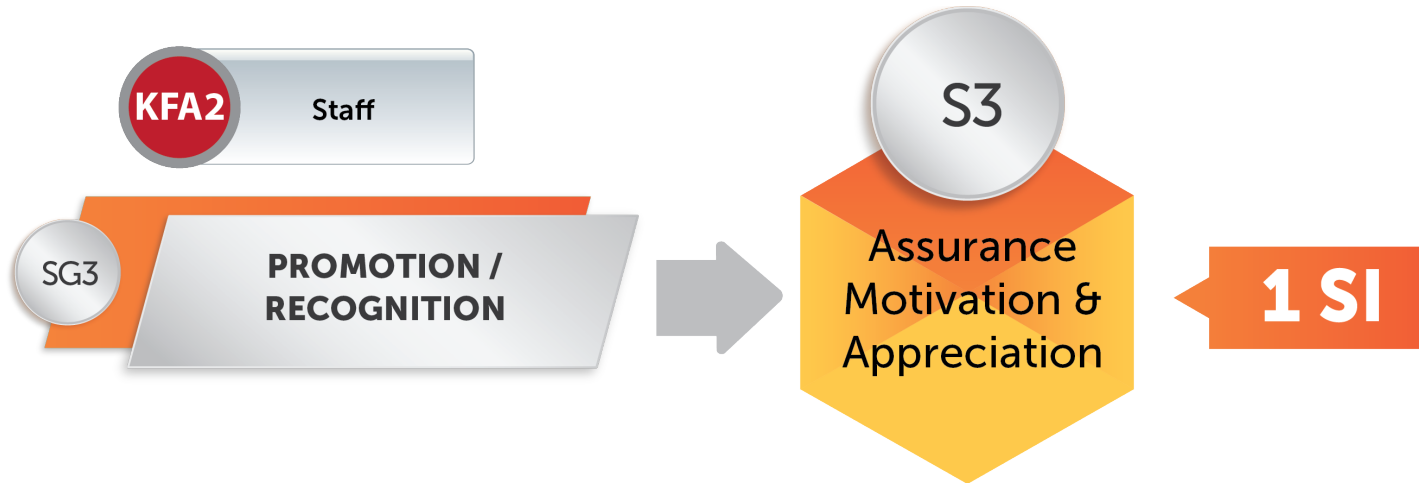
Strategies	Strategic Initiatives	Outcome
(S2) Ensure that staff training and attributes are in line with USM's mission and vision.	SI(5). Develop comprehensive training modules to meet USM vision & mission.	2.1 A training program which is structured based on USM's mission, vision and values to improve staff aptitude, attitude and competency.

A single strategy is hoped to be a start, i.e., to ensure that Staff training and attributes are in line with USM's mission and vision. In-house built, comprehensive training modules are to be developed to provide quality training for USM staff in order to fine-tune their attributes, skills and feelings towards USM's mission and vision. With an in-house training module and training facilities, USM will have the advantage of staff training anytime to be driven by Values of Excellence identified specifically by the institution (e.g., APEX Values and Thrusts). This generates an advantage over employees in other companies who are left to seek out training opportunities on their own. The investment in training that a company makes shows the employees they are valued and creates a supportive workplace. A structured training and development

program ensures that initially (at a basic level), employees are trained through consistent local-based experience and community background knowledge, supporting National Relevance. The consistency and continuous availability of further training is particularly relevant for no longer the company's basic policies and procedures, but are projected into provincial, regional and international relevance. Conclusively, all employees shall need to be aware of the expectations and procedures within their institution, and vice-versa. Such initiative is a convincing a proof that USM is making a strong effort to be aware of her employees' expectations while promoting the USM's vision and mission, spurring Global Prominence through Value Excellence.

**'...ensure that Staff training and attributes are targeted to be in line with USM's mission and vision.'**

Strategic Goal 3: Promotion / Recognition



The third and final Strategic Goal (SG3) to support KFA3 is promotion and recognition. Whilst recognition can be a one-off, promotion and career advancement are permanent or continuous. It is imperative that an HE institution strategically looks into promotion and recognition opportunities of their staff. Clear benefits of a well-coordinated promotion/recognition scheme within an establishment may result in retention of excellent staff, motivates staff and reduces employee resistance, controls and saves costs, and finally, paints an excellent institution image especially in terms of staff support and development.

It is also interesting that Recognition and Promotion can be arguably noted as the most important motivational source for employees. Equally important is the institution's effort to educate employees that Recognition and Promotion does not necessarily come in the form of monetary gains or returns only. The system for rewarding Recognition and Promotion also should be flexible, attractive and fair, with continuous improvement from time to time.

Clear benefits of a well-coordinated promotion/recognition scheme within an establishment may result in retention of excellent staff, motivates staff and reduces employee resistance, controls and saves costs, and finally, paints an excellent institution image especially in terms of staff support and development.

Table 6: Promotion / recognition

Strategies	Strategic Initiatives	Outcome
<p><b>(S3) An assurance of constantly being able to provide motivation and appreciation of the staff.</b></p>	<p>SI(6). Continuous development of promotion &amp; reward systems.</p>	<p>3.1 A flexible, attractive and fair promotion and rewards system that is continuously improved.</p>

The previous table highlights USM's approach in terms of promotion and recognition. The Strategy identified suggests that there should be a mechanism or effort to provide assurance that motivation and appreciation shall be provided to the staff in terms of recognition or promotion. The

benefits are great; an appreciative staff will always appraise his/her establishment, and may act as an effective marketing tool to recommend excellent staff from elsewhere. Again, such results promote national relevance and global prominence, with positive core values being the driving factor.







**RESEARCH**  
KFA 3



**Global Research**

## Introduction

The initiative to strengthen research and development activities in USM started in December 2000. After a series of audits on all research programs and projects, USM found several niche areas that could anchor its path for excellence in research and development. These areas were found to have the potential to be developed and incubated into world-class research and innovation. Upon the conferment of APEX status in 2008, USM has accelerated and become more assertive in moving towards sustainability through vigorous research activities, among other program implementations.

In the USM APEX 2020 phase 2, USM is focused on the long run. The utmost target is positioning itself to be amongst the global top 200 research-intensive universities by the year 2020. Besides this overall target, it also aspires to ensure that 3 of its 5 major fields of study are ranked in the top 100, and 3 subjects are placed amongst the top 50 within the world university rankings. Currently, in QS World University Ranking 2015, USM is placed in the top 100 for two fields, which are (1) Engineering and Technology, and (2) Social Science and Management. USM excelled in the subject Environmental Science, placing amongst the top 50 institutions in the world.

The approach taken to achieve the above aspirations is premised on the multiplied impact of focusing research on thematic issues that are embedded onto issues and challenges of national socio-economic development, involving perspectives from various disciplines. By anchoring the problem statements of research endeavours on issues of relevance to national development, it will ensure that research findings and technologies thus developed will be feasible solutions to the nation's problems and challenges. It will also

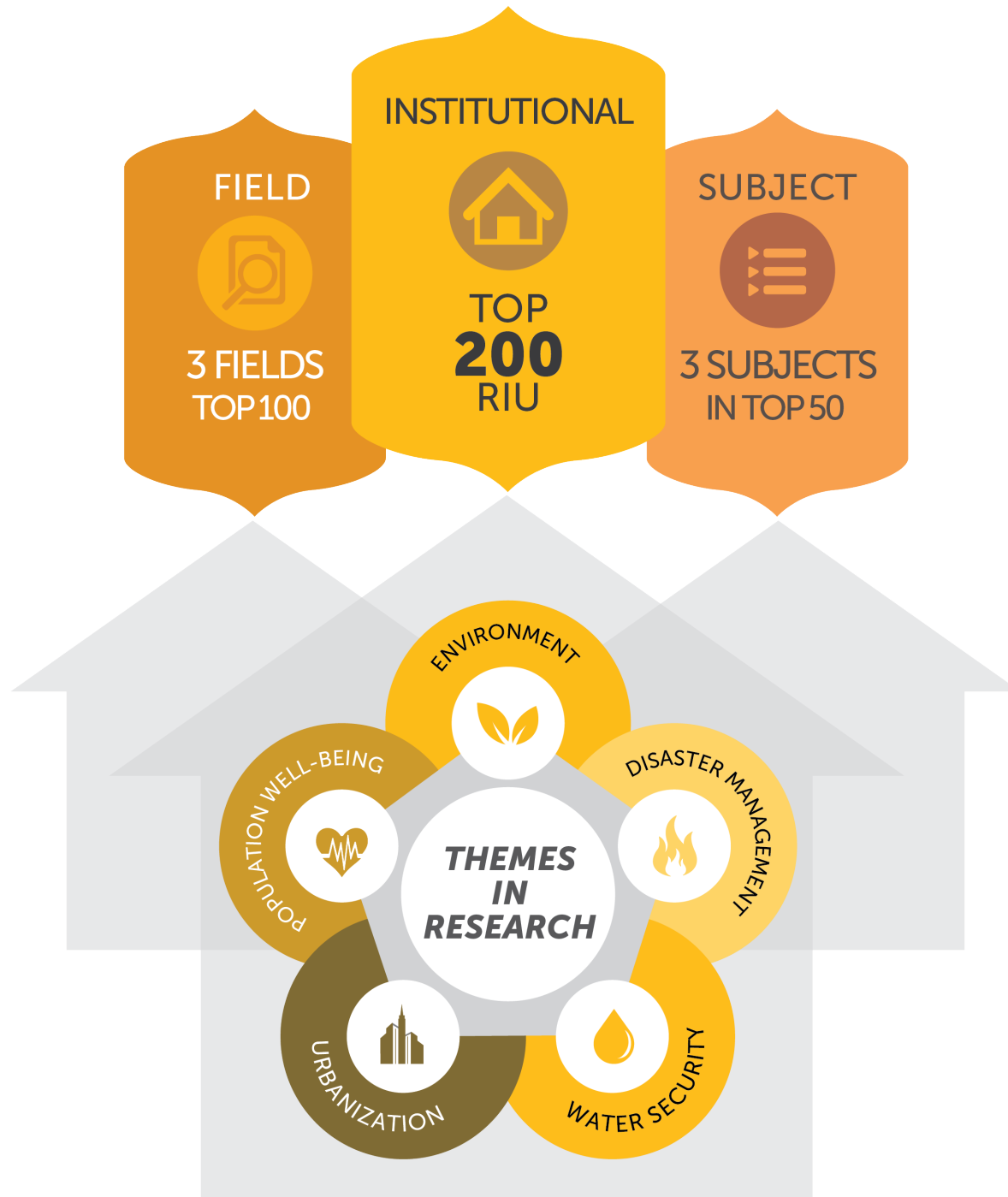
ensure the total chain from problem to solution is appropriately covered, developing both fundamental and applied knowledge that will eventually resolve the issues. This approach of multi disciplinary and transdisciplinary nature will guarantee that outputs and findings will enrich not only the subject areas but also contributes to the development of related subjects and fields of discipline, thus ensuring continued significant impact to USM's research stature.

In ensuring that the above approach will be implemented successfully over the next 5 years, 5 strategies and the corresponding strategic initiatives have been identified. Research programs (that focus not only on the research per se but also the capacity building) will be developed involving multiple disciplines encompassing specific themes of national interest and with internal research strengths. These programs for example can be centred around themes such as Environment, Disaster Management, Water Security, Urbanization and Population Well Being. The initiatives would work by retaining and developing the best talents with ideal cohort profile (to ensure sustainability), improving the facilities governance and building an effective funding scheme, thus producing a conducive ecosystem and enabling world class research to be produced within a shorter time frame. It is hoped that by producing these impactful research USM would lead Malaysia to stay relevant and globally competitive.

Premised upon the foundation of USM seeking to empower the bottom billion, such research would transform lives positively. This is in line with the research culture in USM that has largely focused on community engagement which takes into consideration marginalised and forgotten members of society.

“ To enhance USM research ecosystem of supporting national development agenda and universities global research prominence. ”





Current placing according to QS World University Ranking (2015).

Table 7: USM aims to be in the top 200 of Global Research Intensive Universities, top 100 in 3 fields of disciplines and top 50 in 3 subjects of disciplines

Strategies	Strategic Initiatives	Outcomes
(S1) Sustain and synergize three fields	<p>SI(1). Research in Management and Social development should primarily support the Engineering and Life &amp; Medical Sciences</p> <p>SI(2). Creating multidisciplinary research themes in;</p> <ul style="list-style-type: none"> <li>• Environment</li> <li>• Disaster management</li> <li>• Water security</li> <li>• Urbanization</li> <li>• Population well being</li> </ul> <p>SI(3). Specific research funding should be for multidisciplinary research programs</p>	<ol style="list-style-type: none"> <li>1. USM to be placed in the top 200 of Global Research Intensive Universities</li> <li>2. USM having 3 Fields in Top 100; namely in Engineering and Technology, Social Science and Management, and Life and Medical Sciences</li> <li>3. 3 Subjects in Top 50; focusing in Engineering subjects.</li> </ol>
(S2) Sustain funding for identified themes.	<p>SI(4). Policies for specific funding allocations</p> <p>SI(5). Creating research endowment for the specific themes</p> <p>SI(6). Set up Research Intelligence Unit to diversify funding sources</p>	
(S3) Optimising resources and facilities.	SI(7). Creation of functional shared facilities	
(S4) Strengthening cohort.	<p>SI(8). Enhancing research expertise into specific themes</p> <p>SI(9). Research mentoring</p>	
(S5) Ensuring access to talent.	<p>SI(10). Recruiting talent into specific themes</p> <p>SI(11). Enlarging talent pool beyond academia</p> <p>SI(12). Retaining high value researchers</p> <p>SI(13). Strategies identified by Group dealing with High Performance staff</p>	

## Sustain and synergize three fields

For USM to be a globally prominent research university, several strategies have been identified to boost the institution's position amongst its peers globally. The first strategy is to sustain and synergize three selected fields. USM has several fields that have the potential to be anchors on its path for excellence in research. According to QS World University Ranking 2015, Engineering and Technology emerged as the top field among all fields in USM at number 85 while Social Science and Management is at number 89. On the other hand, Life and Medical Sciences was chosen as one of the fields to focus on as we want to align research effort with USM's disciplinary focus of Science, Technology and Mathematics. These fields of strengths should be synergized to ensure that USM can lead in addressing specific themes and/or issues that beset socio-economic development both at national and international level. Efforts to sustain and synergize these three fields could be conducted through three strategic initiatives..

The primary challenge is to change the mindset of researchers to be more transdisciplinary in their approach to addressing issues, rather than limiting their approach to specific disciplinary views. Thus, to promote and encourage multi-disciplinary research, collaboration and cooperation, a borderless strategy that dispenses with loyalty to specific disciplines should be created. This strategy can be implemented by identifying appropriate themes to address and create either a new nexus or platform for each theme or to reorient current Center of Research Initiatives (CRI). Each nexus will be championed by a specific Science and Technology (S&T) group with support from other groups (S&T or otherwise). Identifying the right theme and champion is critical to the whole strategy.

Another important initiative to ensure successful implementation of this strategy is to ensure that the right themes are chosen. For this, developing a research intelligence unit is critical in order to monitor the changes in the research landscape as well as track the various factors that may impinge upon the research agenda. This is especially true also in identifying sources of research resources (particularly human and financial resources).

## Sustain funding for identified themes

As we are suggesting to leverage on thematic research which potentially could be a very powerful tool to boost global research prominence, USM needs to sustain a working funding scheme for identified niche areas. Financial availability is one of the key supporting mechanisms to generate outstanding research. Two main strategic initiatives have been identified to help build a better funding scheme.

The new nexus or a reoriented CRI needs to develop policies for specific funding allocations in order to supplement the inadequacy of the grants provided by the public and private sectors, especially since most of the existing grants are for basic and fundamental research. Endowments will also guarantee that consistent research funding is made available to sustain the research. Thematic research would also need a different funding governance as it involves researchers from different fields based in the different faculties and schools. This enhanced governance will ensure that research expenditure and income will be seamless and conducive to support research activities.

Alternatively, forming research endowment for the specific research themes to supplement the existing

grants would also be helpful. There are three ways of getting funding for the endowment:

- All income generating research activities will contribute a percentage into the endowment fund.
- USM will approach agencies or NGOs with similar research themes to donate some funding to the endowment fund. At the moment, we already have existing governance for receiving money for this purpose.
- Excess from grants for completed research projects will also be placed in the endowment fund to be used in future research.

Apart from that, a Research Intelligence Unit (RIU) needs to be formed to diversify funding sources. This Unit will be responsible to scout for funding opportunities globally, the criteria needed to apply for such funds and to secure world-wide collaboration opportunities.

### Optimising resources and facilities

To date, USM has some of the best research facilities amongst public research assets (higher education institutions and research institutes) in the country. However, there are some recognized problems in the governance of the resources and facilities in research. Maintenance and obsolescence are continuing challenges as they are very costly, whilst public funding for such activities is shrinking. Policies to ensure sustainability of existing equipments and keeping up with technology enhancements need to be put in place if the facilities are to be made at par with our competitors. Under the current scenario of escalating cost and limited funds, the focus on equipments and facilities has to focus on quality and less so on quantity; thus the sharing of large scale and costly activities will

have to be the norm in future. Mindset has to move away from ownership of equipments to access to equipment; researchers to focus on the research while maintenance be centralized to dedicated technical units. All these point towards a new governance of research facilities, with large facilities centrally managed rather than distributed facilities independently owned and managed by faculties.

A policy needs to be put in place that new capital investment into equipments and scientific facilities should be centrally done and managed. Access will be made available to all at a cost. The cost structure should be such that the centrally managed facilities will in the long run, cost neutral with sufficient income generation to ensure proper maintenance as well as equipment replacement upon reaching a state of obsolescence or beyond-economic repair. Furthermore, access to state of facilities required by the researchers can be enhanced by resorting to outsourcing as well as collaborative arrangements with domestic as well as foreign research institutions.

### Strengthening cohort

Presently, USM has an array of talented academics in various fields. However, the ageing population phenomenon is also reflected in the demographics of the university's researchers. Ensuring the sustainability of the talent pool to pursue the research excellence agenda is imperative to achieve our long term aspirations. Therefore, the challenge is to ensure that the university succession planning for research leadership is well in place. Two main strategic initiatives were formed.

The initiatives will include recruitment of new talents into the thematic themes' training and mentoring of

new recruits. Recruitment of talents can be sourced from either existing researchers whose research interests may have lost traction or from those newly minted doctoral graduates. Both will require some form of training and re-skilling to ensure they can participate and contribute positively to the progress of the themes. Training also is important to ensure the existing researchers are updated in their requisite skills and knowledge. Recruitment also will have to take cognizance that maintaining a viable cohort, a fair distribution between the more experienced and the lesser experienced, is critical for continuity of the research group. Maintaining such a demographic profile is also necessary to ensure mentoring can occur and conducive collaborations (given the collective nature of the Malaysian culture)

### Ensuring access to talent

Talents are not only limited to academics and principal investigators, but also support staff, technical personnel and research students. These talents need to be inducted into these thematic research agenda and nurtured into promising researchers. Four strategic initiatives have been identified to ensure access to new talents, either in academe or industry.

USM needs to recruit talent into specific themes instead of specific fields. Research Intelligence Unit, indicated in the first strategic objective will also play a role in identifying appropriate talents that are available in the labour market. Profiling the competencies and knowledge required by the different thematic nexus

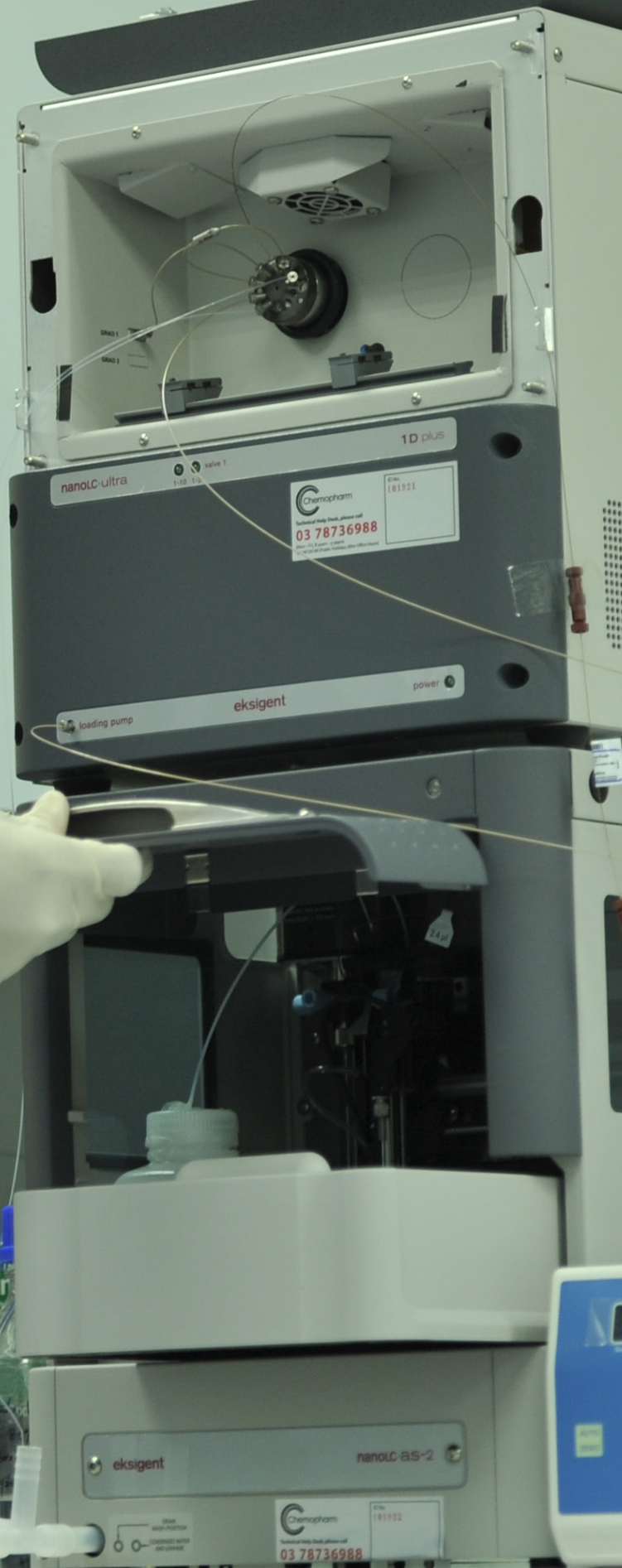
(Identified in strategic objective 1) is a critical first step to ensure that USM is recruiting the right people to be inducted into the research teams.

The search for new talents should also extend beyond the academic boundaries; sourcing new talents from the industries in the immediate future becomes critical as the research agenda revolves around themes anchored in socio-economic challenges.

Ensuring seamless transitions from graduating doctoral students, both local and foreign, is critical as the potential of success from this pool of new talent is much higher, as they are already in the USM research culture.

Post doctoral programs should be enhanced both for USM researchers as a means to inculcate them into impactful research culture; as well as a short term measure for visiting foreign researchers and scientists to be inducted into the research agenda of the university.







**RESEARCH**  
KFA 4



**National Development**

## Introduction

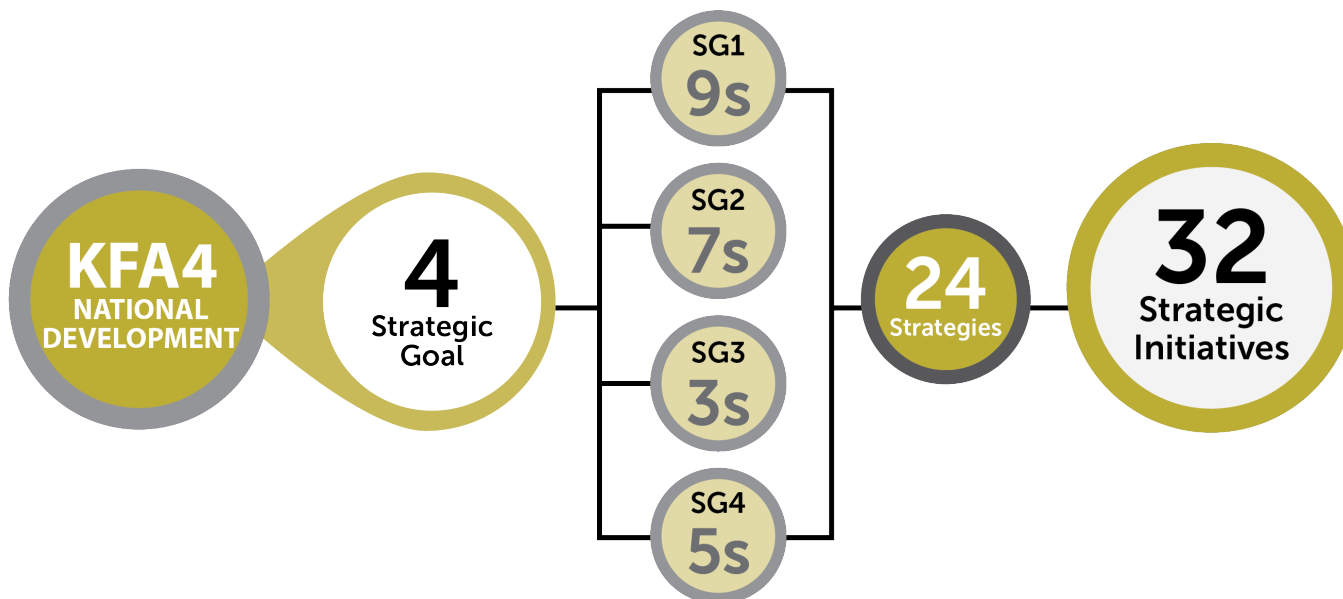
The larger community might not realise that the up-to-date findings and inventions can be found in both research institutions and institutions of higher learning (IHL) such as universities. The government, based on their millions of ringgit investments into research and development is willing to be part of the achievements if researchers and inventors are proactive in bringing forward their products for commercialization. This will consequently enable the university to be not only nationally recognised but at the same time, globally acknowledged.

However, in the process of identifying and later taking the invention to the next level, the university should be part of the agencies that speeds up the work and become a one-stop centre for the academic staff to seek advice and perhaps find collaborators. This in way will reduce the workload of a researcher.

In the journey to becoming a relevant institution to the community and thus to the country, four (4) Strategic Goal (SG) have been set for the university to move together under the APEX agenda. These SGs include;

- SG1.To enhance knowledge and technology transfer program
- SG2.To create a competitive innovation and entrepreneurship ecosystem
- SG3.To become a national referral and repository centre for six identified NKRA
- SG4.To enhance human capital development to meet demands of local and global job markets

Under the 4 Strategic Goals, there are a number of initiatives, which need to be undertaken by the university in order to spearhead the Key Focus Areas specified previously.



## Strategic Goal 1: To enhance knowledge and technology transfer program

In the first goal under the National Development, the university strongly believes that the advancement of a country should start from the community themselves. The mind-set of the people should be continuously changed and updated with the current scenario, in particular, in science and technology via research and development.

There is a total of 17 Strategic Initiatives, (SI) under the given SG, which come from various parties. Some are about to be executed and there are others that require careful implementation. For instance, there are 7 initiatives within the objective, which can be easily implemented, but rather giving a small impact

to the university. The ready-to-go Symbiosis2 programme between the 3 specified agencies (USM, NCIA and MTDC) is currently in the process of implementation and will be ready by the first quarter of 2016. Other "quick win" initiatives include the setting up of a comprehensive USM's repository system that will increase the visibility and accessibility of all the experts within the institution. In view of the fact that the visibility of academics is very much important, therefore, they should also be able to make themselves visible by participating conferences and exhibitions as invited speakers or perhaps the exhibitors of a particular invention. The other strategic initiatives required in order to achieve the objective are listed in Table 8 .

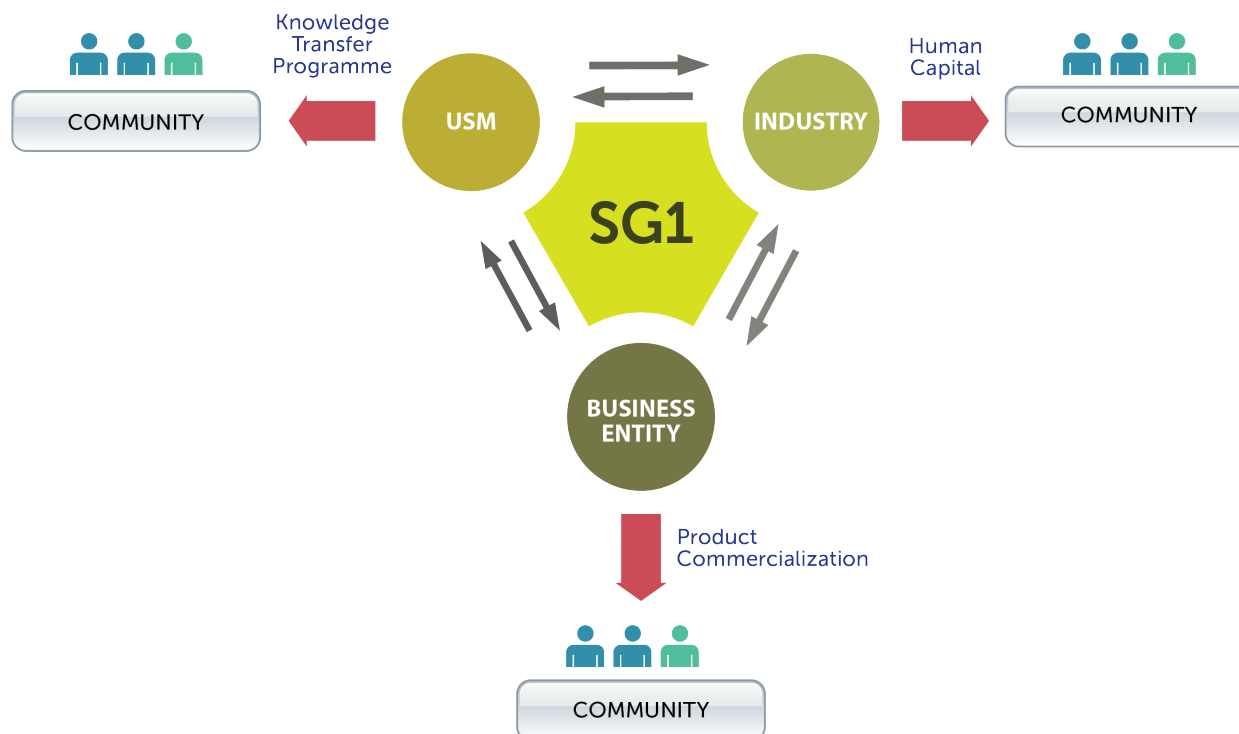


Table 8: Enhancing knowledge and technology transfer program

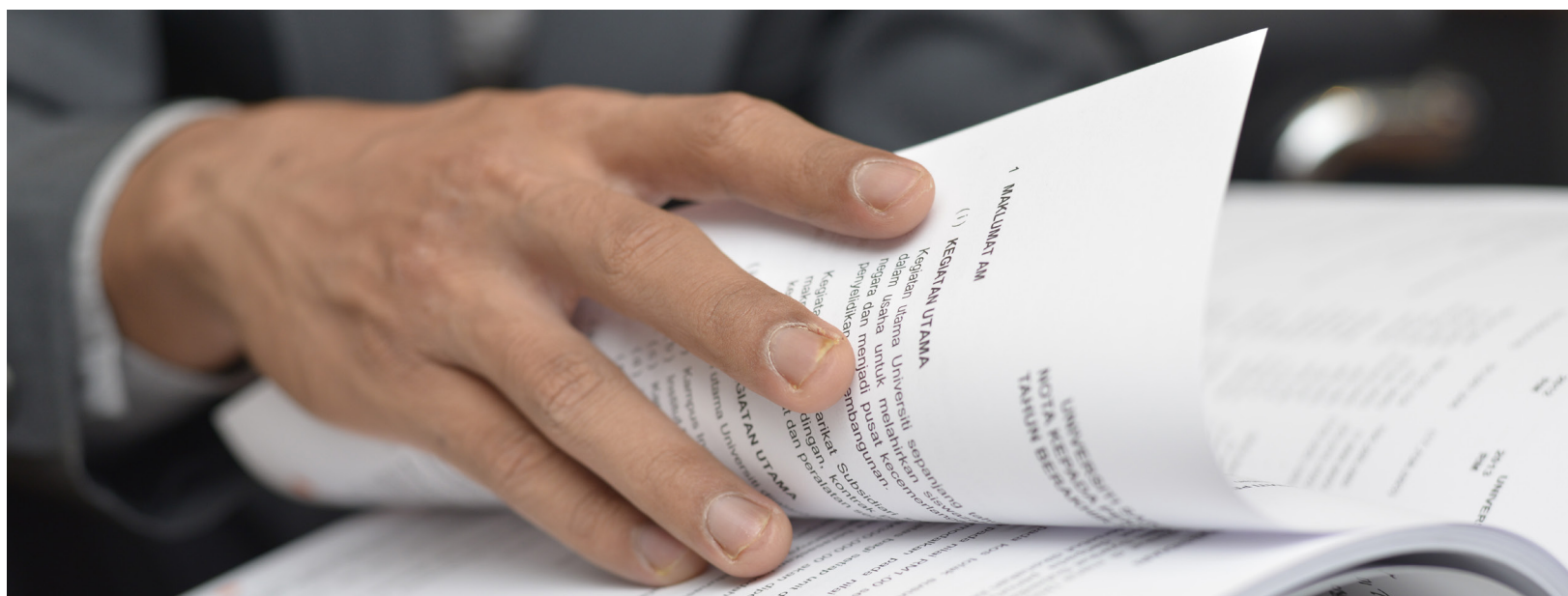
Strategies	Strategic Initiatives	Outcomes
<b>(S1) Strategic alliance, NCIA, state government and other related agencies (MTDC platcom, SME Corp)</b>	SI(1). Symbiosis-2 Program between USM, NCIA and MTDC to be launched early 2016,	1.1 Number of graduates enrolled in the program 1.2 Number of technologies adopted
	SI(2). National KTP for RMK 11,	2.1 Increase number of projects by 10% for RMK-11
	SI(3). Green technology program,	3.1 Course in each science and engineering school
	SI(4). USM, NCIA in biotechnology related in bio-fertilizer and shared lab on soil and water quality,	4.1 Number of areas of collaboration 4.2 Establishment of joint laboratories for water and soil quality 4.3 Technologies and expertise utilized
	SI(5). Science education with NCIA and Kedah State Government,	5.1 Specific program on science for schools in Kedah
<b>(S2) Engaging business development unit/ Special business</b>	SI(6). Transformation of USAINS,	6.1 Increase in income generation
<b>(S3) Increase visibility and accessibility of expertise in USM</b>	SI(7). Setup of institutional repository system,	7.1 Integrated database
	SI(8). Special dedicated unit for business promotion of research products (Social media, website, blog),	8.1 Number of research products commercialized

Table 8: Enhancing knowledge and technology transfer program (cont'd)

Strategies	Strategic Initiatives	Outcomes
<b>(S4) Increase participation of academia in knowledge and technology transfer activities</b>	SI(9). Participation in conferences and exhibitions, as invited speaker, presenter and exhibitors,	9.1 Number of programs and researchers participated
	SI(10). Quadruple/ Triple Helix program,	10.1 Number of Quadruple/ Triple Helix program
<b>(S5) To champion multidisciplinary intra and inter institutional participation</b>	SI(11). INOR GaN on GaN and Nanotechnology,	11.1 Number of projects implemented
<b>(S6) Acculturation enculturation of academia-industry friendly ecosystem to increase the confidence level of industry</b>	SI(12). Program for Scientist/Techno Preneur for researchers to buildup confidence,	12.1 Number of programs and researchers participated
	SI(13). Establish an academia-industry advisory council,	13.1 Numbers of Industry-driven research carried out 13.2 Number of IP's taken up by the industry
	SI(14). Sabbatical/ Industrial attachment or vice versa,	14.1 Number of staff attachment

Table 8: Enhancing knowledge and technology transfer program (cont'd)

Strategies	Strategic Initiatives	Outcomes
(S7) Identify established PI to lead cohorts of new generation of researchers in securing external funding	SI(15). Introduce mentor-mentee program,	15.1 Number of mentors 15.2 Number of mentees benefited 15.3 Number of external grants
(S8) To foster and establish smart partnership with other institutions	SI(16). Joint program with Innovation Technology Manager Association (ITMA),	16.1 Number of MoU is and MoA's 16.2 Number of shared IP's produced and commercialized
(S9) Full recognition of activities related to knowledge and technology transfer	SI(17). Special promotion track and incentive,	17.1 Number of academia promoted base on this promotion track







## Strategic Goal 2: To create a competitive innovation and entrepreneurship ecosystem

The second goal is particularly focused on the development of human capital in order to prepare them for the entrepreneurial program so that they can bring forth product-based research. The 7 initiatives include the mentor-mentee program, special promotion track and incentives for staff and finally the introduction of innovation and entrepreneurship module into the TeRamPiL program. These initiatives are all directed toward the staff development, with the aim of instilling values and ethics to these renowned high performance staff.

However, the other 4 initiatives are about transforming and developing the processes and programs, which include the quadruple/triple helix program, transforming the USAINS Holdings (a corporate arm of the university), develop an engagement program relevant to the funding agencies and last but not least, creating a platform for de-risking of the proposed plan and at the same time develop a business model, which involves the Graduate School of Business together with the School of Management of Universiti Sains Malaysia.

Table 9: Creating a competitive innovation and entrepreneurship ecosystem

Strategies	Strategic Initiatives	Outcomes
(S1) To establish quadruple helix involving academia, industries, government (funding agency) and community	SI(18). Quadruple/ Triple Helix program,	1.1 Number of Quadruple/ Triple Helix program
(S2) To create mentor mentee program among researchers to assist startup companies (Incubators)	SI(19). Introduce mentor mentee program,	2.1 Number of mentors 2.2 Number of mentees benefited 2.3 Number of external grants secured
(S3) To restructure business unit	SI(20). Transformation of USAINS,	3.1 Increase in income generation
(S4) To facilitate and incentivize researchers	SI(21). Special promotion track and incentive,	4.1 Number of academia promoted base on this promotion track
(S5) Explore, identify and secure new funding sources	SI(22). Engagement program with the relevant funding agencies,	5.1 Number of linkages and amount of funding
(S6) To develop complete and viable commercialization package (including de risking)	SI(23). To create a platform for de risking and creation of business models involving GSB and SoM,	6.1 Number of potential IP that have been evaluated based on risk 6.2 Number of relevant business models created
(S7) To expose and nurture new academic staff to innovation and entrepreneurship programs	SI(24). Introduction of innovation and entrepreneurship module into TeRamPiL Program,	7.1 Number of scientists and academia enrolled

## Strategic Goal 3: To become a national referral and repository centre for 6 identified NKRA



The alignment of the national needs to that of the university's strength is crucially important if the institution wants to be relevant towards the year 2020. The 6 out of 9 national Key Focus Areas should be

uplifted as the university's main agenda, and by doing so, 3 Strategic Initiatives have been identified, which aim to foster active research and innovations to cater to the needs of the community.

Table 10: Becoming a national referral and repository centre for 6 identified NKRA

Strategies	Strategic Initiatives	Outcomes
(S1) To increase the number of CoE, HiCoE and regional CoE in all the six NKRA	SI(25). Accelerated program for CoE and HiCoE establishment,	1.1 At least 1 for each NKRA
(S2) To identify and advise person/group on the establishment of CoE and HiCoE	SI(26). To create an advisory unit to identify person/ group, their needs in order to establish HiCoE,	2.1 Number of HiCoE's in 4 NKRA which reflect the strength of USM
(S3) To set a higher performance exceeding the national basic criteria of HiCoE	SI(27). Monitoring by the advisory unit,	3.1 Number of potential HiCoE's

Since the university has identified its research strength, then these areas should be able to become the country's centre of reference in any of the specified fields. For instance, the current National Poison Centre, housed in USM has been playing its role to advise the Health Ministry on the use of "vape" among the youths and adults in Malaysia. Another high-flyer centre of excellence in USM is the Institute for Research in Molecular Medicine, INFORMM where research products have been well-known globally, for instance, the diagnostic kits such as TYPHIDOT and BRUGIARapid to name a few.

Thus, the initiative to develop the 6 chosen strengths into CoE and HiCoE is put forth and should be established by the year 2020. Nonetheless, in order to go through the obstacles in the course of achieving the goal, 2 quick win initiatives have been set and these include creating an advisory unit that identifies a person or a group of researchers whom require help in setting up HiCoE's. The unit also monitors and advises especially on the requirements of the ministry towards establishing a centre of excellence.

## Strategic Goal 4: To enhance human capital development to meet demands of local and global job markets

The last strategic goal under the National Development Key Focus Area is on enhancing human capital development equipped with both research skills as well

as able to apply the entrepreneurial skill for national needs. The initiatives are given in the table below.



Table 11: Enhancing human capital development to meet demands of local and global job markets

Strategies	Strategic Initiatives	Outcomes
(S1) Identify and create training programs that meet funding agencies' requirements	SI(28). Engagement program with the relevant funding agencies responsible for human capital development,	1.1 Number of linkages and amount of fundings
(S2) Collaborate with external training agency to conduct/ organize USM training program	SI(29). Smart partnership to conduct training program,	2.1 Number of training programs and participants
(S3) Understanding the current requirement of the industry	SI(30). Situational analysis program with industry,	3.1 Increase engagement with industries
(S4) To create differentiated career pathways	SI(31). Special promotion track and incentive,	4.1 Number of academia promoted based on this promotion track
(S5) To create teams focusing on developing various human capital training program	SI(32). Special Interest Group (SIG) for developing and conducting training programs,	5.1 Number of modules and personnel trained

In order to encourage academic staff to venture into research product commercialization, the university has to initiate a specialized program that engages with companies; from both government and private sectors to provide training as well as motivational sessions.

This will ensure that researchers continuously receive support and encouragement from the university, which can then also be taken into consideration for the proposed special promotional track.



INSTITUTION  
KFA 5



Values

Introduction

**R**UKUN NILAI USM is a new element introduced as the basis to drive excellence and fulfill USM APEX 2020. Rukun Nilai USM consists of 5 core values which are KEBIJAKSANAAN (wisdom), KEBENARAN (truth), QALBU (pureness of the heart), KEMANUSIAAN (humanity) and KEINDAHAN (beauty). The practice of Rukun Nilai USM falls under the Key Focus Area (KFA) of Values which consists of 4 Strategic Goals (SG), 8 Strategies (S) and 18 Strategic Initiatives (SI). Rukun Nilai USM must be understood, translated and practised in all programs and activities. Rukun Nilai USM represents the policy and the culture of USM.

KFA5 Values has identified 6 target groups: (1) the top management, (2) academic staff, (3) management and administrative staff, (4) professional staff, (5) supporting staff, and (6) students and alumni.





## Strategic Goal 1: Ensuring High Performing and Excellent Talent instilled with Rukun Nilai USM

**R**UKUN NILAI USM has to be instilled in all levels of management as well as academic staff, students and alumni so that USM talent applies the values embedded in Rukun Nilai USM in their work culture as well as personality. In this way, excellence in USM is understood as that which is grounded in Rukun Nilai USM. Similarly, efficiency among management and administrators must also be one that is embedded with Rukun Nilai USM. To achieve this goal, 3 Strategies and 9 Strategic Initiatives have been formulated. The first strategy is formulated to ensure that USM Talent

Management is enhanced with Rukun Nilai USM. Towards this end, 6 strategic initiatives have been identified, building from existing programs and activities as well as introducing new ones. Existing programs such as TeRamPiL (Teachers, Researchers in Academic and Management, Practitioners, Leaders), will incorporate Rukun Nilai USM so that it will be in-line with the overall objective of achieving institutional excellence. In addition, promotion exercises and performance appraisals have to take into account excellence, efficiency and merit grounded in Rukun Nilai USM.



Table 12: Ensuring high performing and excellent talent instilled with Rukun Nilai USM

Strategies	Strategic Initiatives	Outcomes
<p><b>(S1) To enhance the management of talent of six target groups with Rukun Nilai USM to achieve their strategic goal.</b></p>	<p>SI(1). Incorporate Rukun Nilai USM in TeRamPiL program.                      SI(2). Develop a succession plan driven by Rukun Nilai USM                      SI(3). Develop a promotion system driven by Rukun Nilai USM that prioritises merit and excellence                      SI(4). Introduction of 360 performance appraisal system grounded in Rukun Nilai USM                      SI(5). Creating a conducive environment and culture that support motivational and continuous character building programs driven by Rukun Nilai USM                      SI(6). Develop student development programs and activities to instill Rukun Nilai USM</p>	<p>Rukun Nilai USM is incorporated in all activities and programs in Talent Management</p>
<p><b>(S2) To ensure the six target groups achieve excellence grounded in Rukun Nilai USM.</b></p>	<p>SI(7). Develop a system based on Rukun Nilai USM to further drive the six target groups towards excellence</p>	<p>Rukun Nilai USM is incorporated in all activities and programs in Talent Management</p>
<p><b>(S3) To increase efficiency through the development of knowledge and competency standard based on Rukun Nilai USM.</b></p>	<p>SI(8). Enhancing teaching and learning capacity among academic staff to sustain students' interest in learning                      SI(9). Development of a knowledge and competency standard grounded in Rukun Nilai USM for professional and supporting staff</p>	

## Strategic Goal 2 : Towards Good Governance and Effective Communication grounded in Rukun Nilai USM

**I**nstitutional development is dependent on good governance and effective communication among the many layers of management. To this end, 3 Strategies (S) and 7 Strategic Initiatives (SI) have been formulated to target top management, management and administrative staff, professional staff and supporting staff, as well as academic staff and students. As good governance needs to be supported by excellence in management, it is crucial that issues related to underperforming staff be tackled

effectively. In addition, taking into account the current communication landscape, it is also important for communication across the organization to be carried out effectively yet with minimum wastage of resources (such as time). With Rukun Nilai USM instilled amongst all management levels and academic staff, a working culture that values mutual respect, cooperation, inclusiveness, excellence and togetherness will be created. This strategic goal together with its 3 strategies and 7 strategic initiatives is outlined in the table below.

Table 13: Towards good governance and effective communication grounded in Rukun Nilai USM

Strategies	Strategic Initiatives	Outcomes
(S4) To strengthen the system of governance with Rukun Nilai USM.	<p>SI(10). Introduce and implement a more effective management system for underperforming staff</p> <p>SI(11). Re-evaluate existing decision making system to reduce wastage of resources</p>	Incorporate Rukun Nilai USM in governance and communication across all levels of organisation
(S5) To develop effective communication system based on Rukun Nilai USM.	<p>SI(12). Develop a communication management system across all levels of organization to achieve targeted time and quality</p> <p>SI(13). Develop an effective program based on Rukun Nilai USM towards effective communication among students</p> <p>SI(14). Increase the efficiency in using communication technology</p>	
(S6) To inculcate a working culture grounded in Rukun Nilai USM that develop mutual respect, cooperation, inclusiveness, excellence and togetherness.	<p>SI(15). Introduction of a Code of Communication Practice across all levels of organization to achieve effective communication</p> <p>SI(16). Develop training program and effective communication (oral and written) program</p>	

### Strategic Goal 3 : Student Excellence embedded with Rukun Nilai USM

**A**n academic system embedded with Rukun Nilai USM will be used to measure student excellence. Towards this end, all students’ academic recognitions will take into account Rukun Nilai USM to ensure that USM students and graduates are not

only academically excellent but also are values-driven individuals who understand and embrace Rukun Nilai USM in their daily lives. The following table captures the strategic goal, strategy and strategic initiative.

Table 14: Students excellence embedded with Rukun Nilai USM

Strategies	Strategic Initiatives	Outcomes
(S7) To ensure that student academic excellence is based on an academic system embedded with Rukun Nilai USM.	SI(17). Instill Rukun Nilai USM in all students’ academic recognitions	Rukun Nilai USM is incorporated in all academic recognitions

### Strategic Goal 4 : Empowerment of Alumni through Rukun Nilai USM

**A**s agents for change, USM alumni must also understand and embrace Rukun Nilai USM. As such an alumni system of management must be in place to ensure that they can interpret the values embodied in Rukun Nilai USM in their contributions

and activities. In addition, alumni who show an understanding of Rukun Nilai USM in their activities and contributions should be given due recognition.

Table 15: Empowerment of alumni grounded in Rukun Nilai USM

Strategies	Strategic Initiatives	Outcomes
(S8) To empower the alumni management system based on Rukun Nilai USM.	SI(18).Develop an effective alumni management program to enable the alumni to interpret Rukun Nilai USM in their contributions	USM alumni are able to demonstrate an understanding of Rukun Nilai USM in their activities





INSTITUTION  
KFA 6



**Finance**

## Introduction

Institutional development is fundamental in positioning USM as a leader in higher education. Essentially, finance is one of the dynamic components in enabling the organization to stay competitive nationally and internationally.



To realize financial sustainability, therefore, necessitates a financial reform. Financial transformation, formulated as R2VIGA, represents our goals for APEX 2020; of which 30% of own income is to be derived through :

- **50%** Restructuring of University Businesses
- **20%** Cost Rationalisation
- **30%** Income generation through university's "Various Income Generation Activities" (VIGA)

Such proactive measures will be instrumental in supporting the university in its pursuit of teaching and research excellence, as well as produce high performance talents towards achieving global prominence.

Financial transformation initiatives involve three key components; Optimization, Saving and Income (OSI). This is a strategic instrument in driving the aspirations of APEX 2020. In addition, OSI is designed as an effective mechanism to manage the university's resources, businesses and investments.



OSI Model Towards Financial Sustainability



## Strategic Goal

Four strategic goals (SG) have been outlined;

### SG 1: To be granted Financial autonomy

Empower university to manage their resources independently.

### SG 2: To restructure university businesses

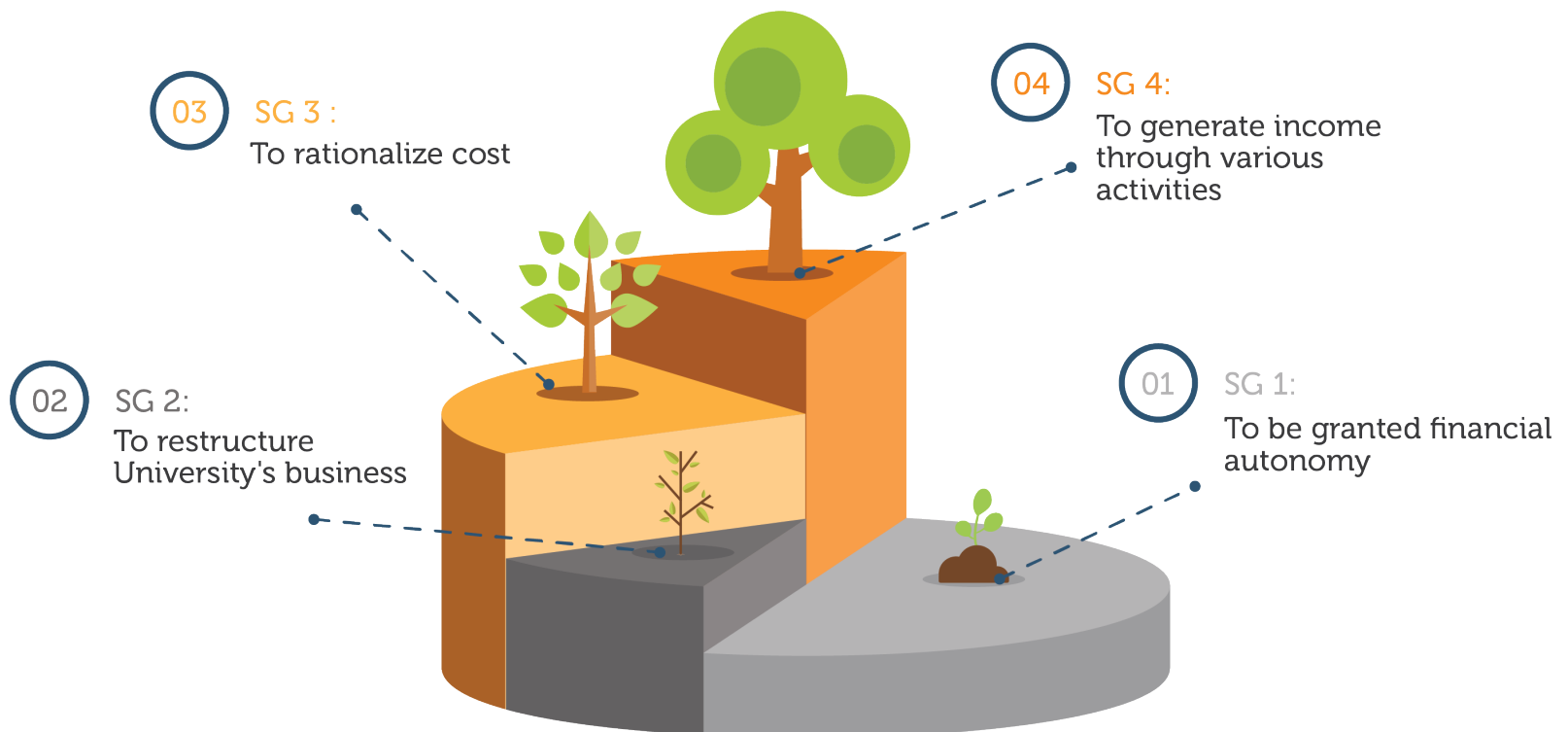
Autonomy results in effective management outcomes.

### SG 3: To initiate cost rationalization at all level of organizations

The initiatives are based on OSI instrument.

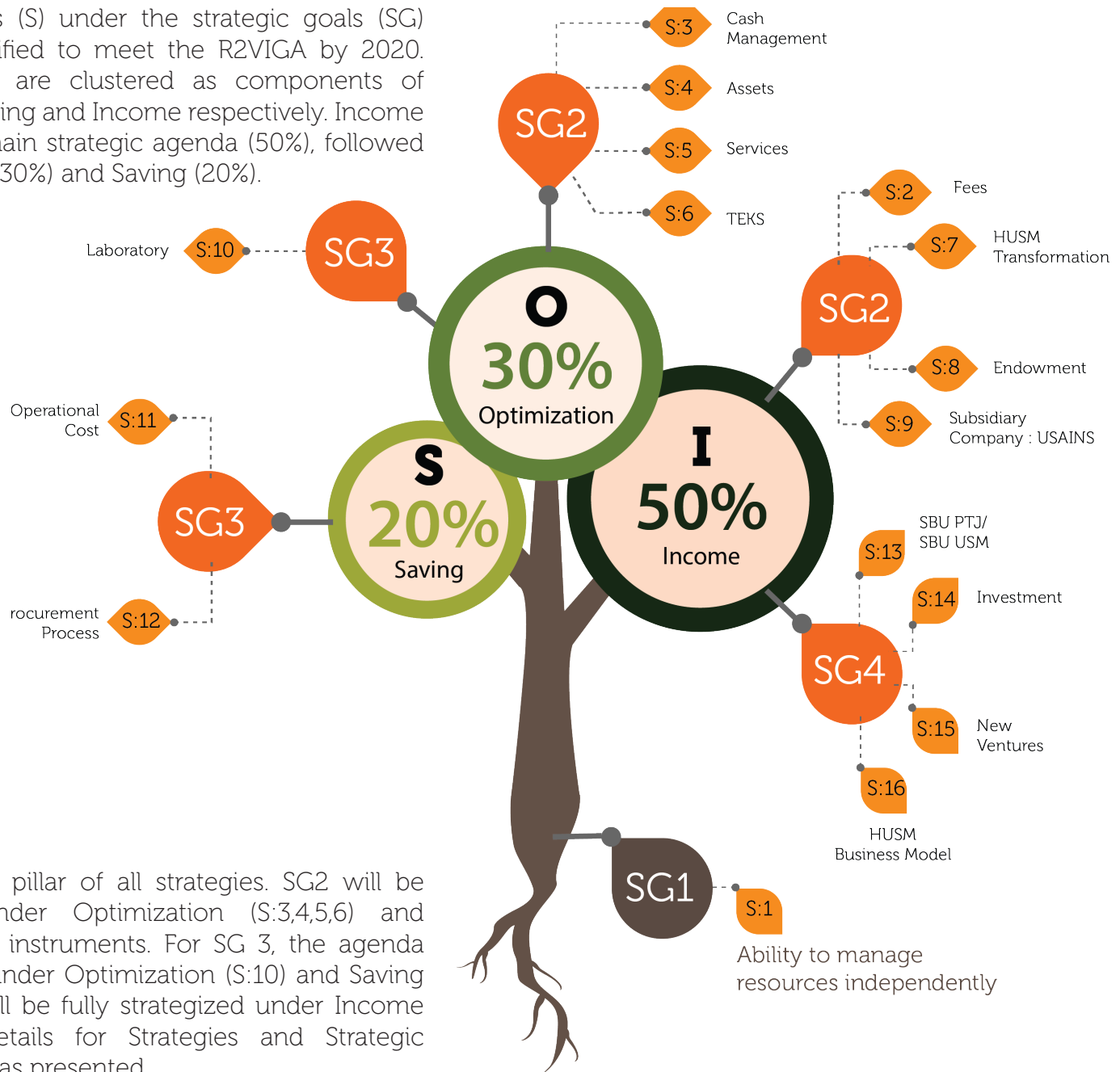
### SG 4: To generate income through various business activities

The key towards 30% VIGA



## Strategies

Sixteen strategies (S) under the strategic goals (SG) have been identified to meet the R2VIGA by 2020. All 16 strategies are clustered as components of Optimization, Saving and Income respectively. Income appears as the main strategic agenda (50%), followed by Optimization (30%) and Saving (20%).



SG 1 (S:1) is the pillar of all strategies. SG2 will be implemented under Optimization (S:3,4,5,6) and Income (S:2,7,8,9) instruments. For SG 3, the agenda will be initiated under Optimization (S:10) and Saving (S:11,12). SG 4 will be fully strategized under Income (S:13,14,15,16). Details for Strategies and Strategic Initiatives (SI) are as presented.

## Strategic Goal

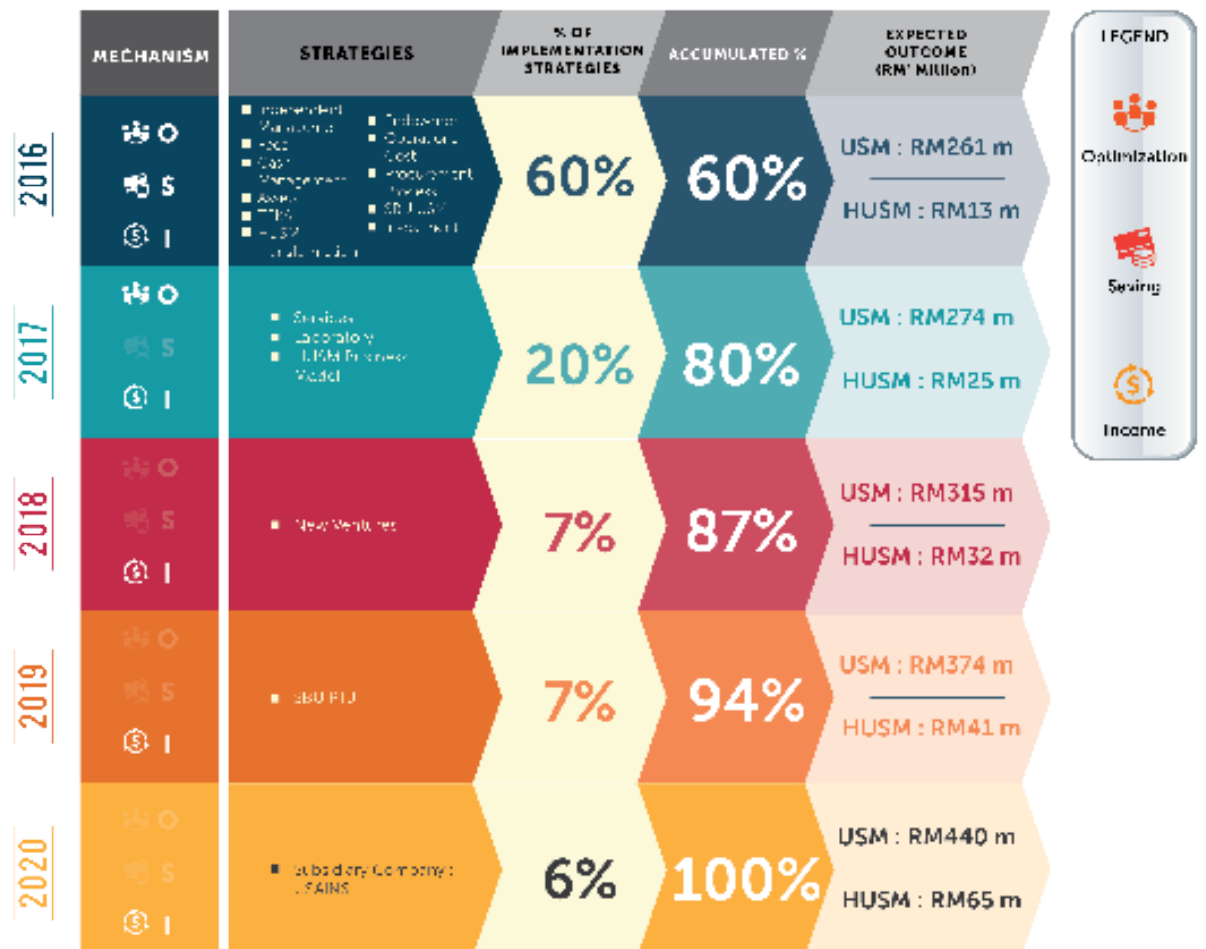
All strategies will be implemented from year 2016 to 2020 (as listed in the timeline). The majority of the strategies (60%) will be implemented in 2016. The process of transformation involves all components: Optimization, Saving and Income. The development progresses by

80% (accumulated) in 2017 with Optimization and Income remaining as focused enterprises, while income generation continues as the main agenda for the final three years (2018-2020) of strategic planning.

Note: Strategies (S) involved in each year:

Year	Strategies
2016	S1 : Independent management S2 : Fees S3 : Cash S4 : Assets S6 : TEKS S7 : HUSM S8 : Endowment
2017	S11 : Operational cost S12 : Procurement process S13 : SBU USM S14 : Investment
2018	S5 : Services S10 : Laboratory S16 : HUSM Business Model
2019	S15 : New Ventures
2020	S9 : Subsidiary Company : USAINS

## TIMELINE



## Strategic Goal 1 : To be granted financial autonomy

Table 16: Financial autonomy

Strategies	Strategic Initiatives	Outcomes
(S1) Ability to manage resources independently.		1.1 Full autonomy without any interferences from the Ministry to achieve excellence in governance and enable USM to move forward in full force.

## Strategic Goal 2 : To restructure University's business

Table 17: Restructuring University's business

Strategies	Strategic Initiatives	Outcomes
		<b>(S2 - S9)</b> - Sustainable financial resources through income generation derived via 'core business' activities, services and facilities - New business model of existing business.
(S2) Revise fees structure.	SI(1). Restructuring of Distance learning (PJJ) fees by increasing or gradually increasing after GOT period. SI(2). Restructuring of Postgraduate fees by increasing or gradually increasing after GOT period. SI(3). Restructuring of Undergraduate fees component i.e. additional services. SI(4). Increase number of student 10% yearly	2.1 Income Generated USM : RM161 million
(S3) Efficient cash management through multiple cash activities and the formation of Investment Technical Panel.	SI(5). Strategic investment with high return and low risk. SI(6). Strategic financial planning to minimize foreign exchange loss.	3.1 Income Generated USM : RM40 million
(S4) Optimization of facilities through dashboard system.	SI(7). Develop an integrated rental business model that includes rental of assets, equipment, premises and facilities.	4.1 Income Generated USM : RM12 million

Table 17: Restructuring University's business (cont'd)

Strategies	Strategic Initiatives	Outcomes
<p><b>(S5) Strengthening service oriented center – IPPT, CAATS &amp; others.</b></p>	<p>SI(8). Develop an integrated and comprehensive services available eg; laboratory services, clinical services. SI(9). Set up Clinical and laboratory services fees structure.</p>	<p>5.1 Income Generated USM : RM12.5 million</p>
<p><b>(S6) Optimizing and utilizing TEKS (Talent, Expertise, Knowledge and Skills) of academic, technical and administrative staffs.</b></p>	<p>SI(10). Training. SI(11). Consultation. SI(12). Testing.</p>	<p>6.1 Income Generated USM : RM18.5 million</p>
<p><b>(S7) Transformation of HUSM business model.</b></p>	<p>SI(13). Restructure hospital fees. SI(14). Extend laundry services to external healthcare provider. SI(15). Optimise hospital space/facilities/ equipments rental (eg. Operation theatre, clinic). SI(16). Convert from Closed Lab Services to Open Lab Services. SI(17). Implement inpatient closed model to Hybrid in-patient service (or Daycare Services). SI(18). Convert Outpatient Conventional System to Patient Opted Appointment System. SI(19). Adopt holistic approach.</p>	<p>7.1 Income Generated HUSM : RM42.5 million</p>

Table 17: Restructuring University's business (cont'd)

Strategies	Strategic Initiatives	Outcomes
(S8) Diversification of Endowment sources.	SI(20). Increase contribution from Yayasan USM. SI(21). Increase effort in soliciting donation.	8.1 Income Generated USM : RM12 million
(S9) Subsidiary Company – Rationalize operation of USAINS.	SI(22). USAINS to increase contribution gradually and commit RM100 million by 2020 (20% of income generation)	9.1 Income Generated USM : RM104 million

### Strategic Goal 3 : To rationalize cost

Table 18: Cost rationalization

Strategies	Strategic Initiatives	Outcomes
		<b>(S10 - S12)</b> - Optimizing of assets, talent, skills and knowledge of staff. - Saving from operation cost and business activities.
(S10) Optimizing and utilizing existing assets for potential business and recognition.	SI(23). Integrated laboratory facilities through OSI approach for national program – eg; IRMS Environmental Isotopes for Disaster Risk Management (DRM), NMR	10.1 Income Generated USM : RM1 million

Table 18: Cost rationalization (cont'd)

Strategies	Strategic Initiatives	Outcomes
<p><b>(S11) Saving of operational cost effectively, efficiently and reduce wastage.</b></p>	<p>SI(24). Implement energy saving initiatives.                      SI(25). Reduce overtime cost by revising working hours.                      SI(26). Reduce travelling cost by expanding options.                      SI(27). Outsource common services eg : IT, development.                      SI(28). Restructure internal processes to enhance good governance, reduce redundancy, expedite processes, out sourcing, automation of processes etc.                      SI(29). Reduce number of support staff as a result of internal process restructuring.</p>	<p>11.1 Income Generated                      USM : RM5.2 million</p>
<p><b>(S12) Improving procurement process towards cost efficiency.</b></p>	<p>SI(30). Implement 'just in time' procurement                      SI(31). Implement panel of vendors system.                      SI(32). Centralize purchase of assets.                      SI(33). Purchase assets based on ROI assessment.                      SI(34). Implement effective negotiation procurement management.</p>	<p>12.1 Income Generated                      USM : RM1.4 million</p>

## Strategic Goal 4 : To generate income through various activities

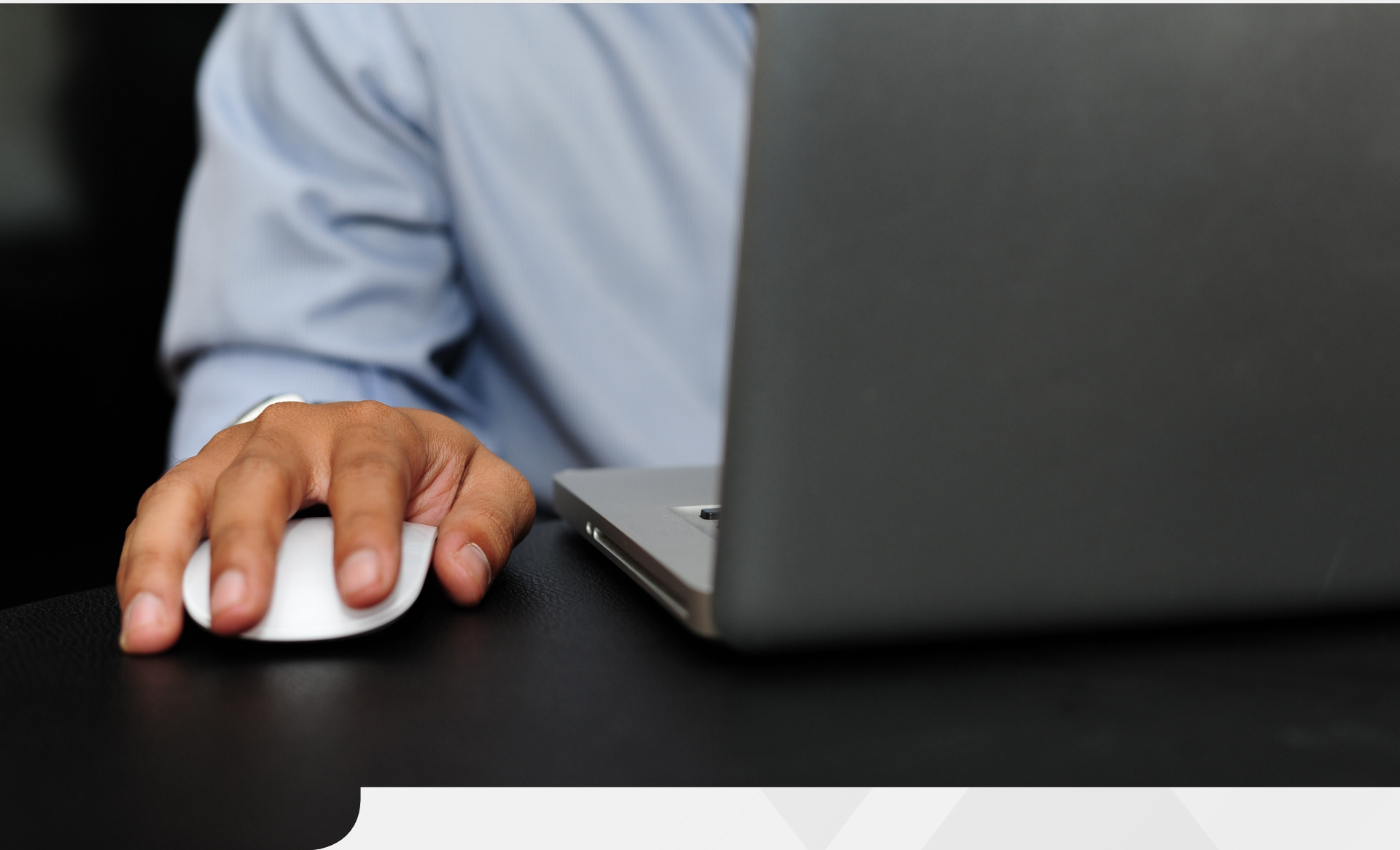
Table 19: Generating income through various activities

Strategies	Strategic Initiatives	Outcomes
		<b>(S13 - S16)</b> - Sustainable financial ground by ensuring stable & realistic annual budget allocation and increase capacity to generate income. - Income from new ventures.
<b>(S13) Autonomous income driven PTJ that operates as an independent enterprise with responsibility for a particular range of products and activities.</b>	SI(35). Implement Strategic Business Unit at University and Responsibility Centre level.	13.1 Income Generated USM : RM20 million
<b>(S14) Investment.</b>	SI(36). Create smart business partnership. SI(37). Strategic investment in real estate.	14.1 Income Generated USM : RM5 million



Table 19: Generating income through various activities (cont'd)

Strategies	The Strategies (S)	Expected Outcomes
<p><b>(S15) New business ventures based on core/ existing competencies.</b></p>	<p>SI(38). Set up healthcare business eg; Private Hospital and Wellness &amp; Hospice Centre.</p> <p>SI(39). Expand research and publication into new business using TEKS eg; USM Press, data mining and analytic services.</p> <p>SI(40). Develop entrepreneurial ecosystem eg; sains@usm and Incubator</p> <p>SI(41). Tap into new market segment via International academic program using TEKS eg; Heritage Science, TVET College, International Women's College, Liberal Arts and APEX Diploma.</p> <p>SI(42). Venture into state of the art technology such as next generation solid state lighting and GaN-On-GaN research Programme (INOR, OLED).</p> <p>SI(43). Create Sungai Merbok UNESCO Ecosphere.</p> <p>SI(44). Set up Creative Design House.</p> <p>SI(45). Set up Media House.</p> <p>SI(46). Setup Software House.</p> <p>SI(47). Increase number of offshore course collaborations.</p> <p>SI(48). Increase number of new programs under distance learning.</p>	<p>15.1 Income Generated USM : RM46.6 million</p>
<p><b>(S16) Transformation of HUSM business model.</b></p>	<p>SI(49). Explore New Potential High-Income Generating Customers.</p>	<p>16.1 Income Generated USM : RM42.5 million</p>



INSTITUTION  
KFA 7



**Sustainability**

## Introduction

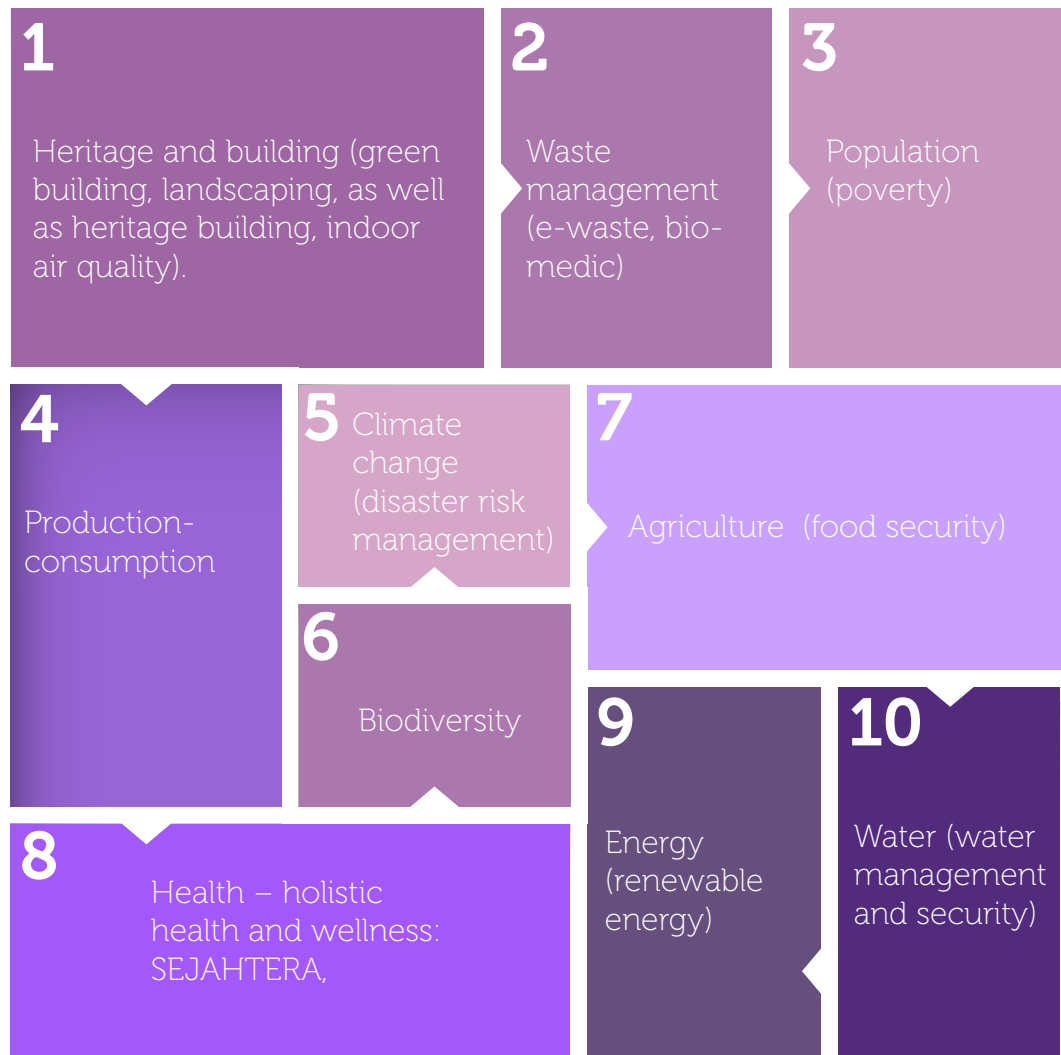
Sustainability is defined as the development that meets the needs of the present without compromising the ability of future generations to meet their own needs. <http://www.un.org/sustainabledevelopment/development-agenda/>.

With this as a guide, USM strategised itself to humanise its goals to serve our communities better after

being established for nearly 46 years. We will use all opportunities, expertise and resources of USM to shape the human capital needs of the future with a focus on the underprivileged and under-served communities globally.

Our SWOT analysis has shown that we stand nationally as well as globally, with two global centers: Centre for

**“USM shall attain global excellence by 2020 in sustainability under the Sustainability Development Goals, but summarized under the WEHAB +5 which are:-”**



Education and Training in Renewable Energy, Energy Efficiency and Green Technology (CETREE GT) and Centre for Global Sustainability Studies (CGSS). Our World Ranking for sustainability/environmental sciences is in the top 100 according to the latest QS Ranking. Our Subject Ranking for Environmental Sciences is ranked 31st position in the world in 2014. This is proof enough that USM is a sustainable-led university and has numerous specialisations in sustainability.

In the ASEAN region, the South East Asia Sustainability Network (SEASN) exists as the only network in Southeast Asia. It is a network of higher education institutions and other related sustainability organisations, agencies, NGOs and industries in Southeast Asian countries, committed to promote, engage and integrate sustainability in teaching, research, community engagement and institutional arrangement. SEASN provides a platform to support higher education institutions and other related sustainability organisations, agencies, NGOs and industries in Southeast Asian countries in the exchange of ideas, findings, information and good practices in teaching, research, community engagement and institutional arrangements with a focus on WEHAB+4. The network has more than 37 different sustainability related organisations working together on the sustainability agenda.

The national relevance of USM is her recognition as a "Kampus Sejahtera". We are referred to by all government and non-governmental bodies for advice on national sustainable issues related to water, renewable energy, green technology, health (aging science), biodiversity, disaster mitigation, and waste management. Numerous projects and programs have been done over the years in these fields indicating the importance and the relevance of USM's expertise and resources.

Positioning Malaysia as a country that advocates and projects a sustainable future, USM offers a Masters in Sustainable Development Practice (MSDP) - a global interdisciplinary graduate degree program that prepares students to better identify and address the challenges of sustainable development. This program consists of two years' coursework in four intersecting disciplines - health, natural, social, and management sciences - combined with cross-sectoral field training.

The interdisciplinary nature of this MSDP program equips students to speak the different "languages" of specialists in, for example, health, agronomy, and economics, enabling them to better understand and address the root causes of poverty and challenges of sustainable development. This program is monitored by the Global Association Board of MDP supported by The Earth Institute, Columbia University, New York, USA. At the moment there are 25 universities in 6 continents offering this program globally. USM is currently the only university in South East Asia that offers this program.

Our Values Driven Initiatives as mentioned in section 6.0 highlights 23 strategic initiatives to inculcate and implement sustainability in USM. USM has internal-external research grants and community/industry engagement grants on sustainability which produce post-graduate students and numerous high impact publications. These initiatives will establish USM as a research and Accelerated Program for Excellence (APEX) university, with focus on sustainability producing sustainable leaders of the future.

We are, and shall be branded as one of the leading global universities in sustainability.

## Strategic Goal 1 : Acculturate sustainability mindset

Table 20: Acculturate sustainability mindset

Strategies	Strategies Initiatives	Outcomes
<p><b>(S1) To instill sustainability via knowledge, attitude and practices among staffs and students.</b></p>	<p>SI(1). Embed optimum value of sustainability in the academic program in USM (Introduce a minimum of 10-15% sustainability \ (WEHAB+4) content into undergraduate and postgraduate courses).</p> <p>SI(2). Move co-curriculum to Academic and International Affairs's (HEAA) purview as an academic program to ensure monitoring of the sustainability agenda.</p> <p>SI(3). All the activities and projects of clubs and students society must be monitored for sustainability by Division of Student Affairs, Development and Alumni (HEPA).</p> <p>SI(4). Offer CPD programs for staff encompassing the 9 areas.</p> <p>SI(5). Align with Teaching/ Teacher, Researcher/ Practitioner/Leader (TeRamPiL).</p>	<p>1.1 HEAA achieves 10-15% sustainability</p> <p>1.2 (WEHAB+4) content into undergraduate and graduate courses)</p> <p>1.3 HEAA achieves 10-20% of the co-curriculum projects with sustainability agenda</p> <p>1.4 HEPA achieves 10-20% of the activities and projects with sustainability agenda</p> <p>1.5 Pusat Transformasi Insan sets atleast 1-2 CPD points per staff to learn sustainability</p> <p>1.6 Insert topics of sustainability in TERamPiL</p>

## Strategic Goal 2 : Develop Institutional Framework for Sustainable Development

Table 21: Developing institutional framework for sustainable development

Strategies	Strategies Initiatives	Outcomes
(S2) Develop a University Framework which encompasses policy, governance and practice (implementation, monitoring and auditing).	SI(6). Re-align governance and practice with the USM Sustainability Policy.	2.1 CGSS prepares comprehensive documentation on governance and guidelines for practice 2.2 Human Resource Department to implement this initiative: Every COR participates in at least 1 activity/project/ program in sustainability 2.3 All Heads of COR must draw a sustainability plan with deliverables yearly 2.4 CGSS has the minutes of COR's meeting showing research, teaching and services in sustainability 2.5 New sustainability office does audit at least once/year
(S3) Improve the sustainability assessment tool to measure sustainability practices.	SI(7). Add a component of sustainability living and practices in the annual SKT and promotional exercises. SI(8). Sustainability Plan: 4Ws, 1H Plan at the Centre of Responsibility (COR) level.	
(S4) Revisit University Sustainability Council (Majlis Kelestarian Universiti).	SI(9). Ensure the ToR to encompass research, teaching and services are in-line with sustainability.	
(S5) Establish a Sustainability Assurance Office to monitor, improve and recommend changes.	SI(10). The office will assure sustainability research and practices.	

**Strategic Goal 3 : Implement sustainability agenda**

Table 22: Implementing sustainability agenda

Strategies	Strategies Initiatives	Outcomes
<b>(S6) Realistic output-based budgeting.</b>	SI(11). Budget allocation based on fixed percentage (4%) of country's Gross Domestic Product (GDP). SI(12). Generate income through services offered by Centers of Responsibility (COR) (e.g., PIPPA, HUSM, CAATS, CDH).	3.1 Assets and Operation Office (PAO), CGSS, CETREE GT, and Development Department to be audited at least once/year 3.2 PAO, CGSS, CETREE GT and Development Department audit all CORs at least once/year 3.3 Secretariat Kampus Sejahtera ensures all staff and students participate in one sustainability project/activity 3.4 Pusat Sejahtera and Director of Health Campus ensures all staffs and students participate in one integrated preventive medicine project/activity 3.5 CETREE GT achieves KPI and deliverables 3.6 REDAC achieves KPI and deliverable of REDAC
<b>(S7) Capitalizing on USM's expertise to generate sustainable income via proactive measures.</b>	SI(13). Increase compliance to Standard Operation Procedures (SOP) in commercialization and consultancy. SI(14). Increase efficiency on intake of postgraduate students.	

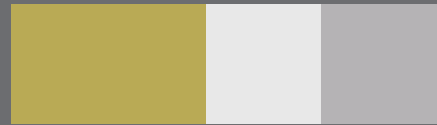


Table 22: Implementing sustainability agenda (cont'd)

Strategies	Strategies Initiatives	Outcomes
<p><b>(S8) Reward Pusat Tanggungjawab (PTJ) that are driven by cost-savings.</b></p>	<p>SI(15). Develop a reward system for cost-effective and impactful spending.</p> <p>SI(16). Impose penalty on Centres of Responsibility that are not run on cost-saving practices.</p>	<p>3.7 CETREE GT helps USM to reduce 10% cost of electricity</p> <p>3.8 REDAC introduces 1% of USM parking area to be covered with solar panels</p> <p>3.9 Development Office works toward reducing 10% of cost of water bills</p> <p>3.10 PAO and Development Office ensure all new buildings comply with the sustainability requirements</p> <p>3.11 All Cluster Heads under RCMO ensures KPI and deliverables of sustainability</p> <p>3.12 ECOHub, CEMACS and School of Biology Science etc achieves KPI and deliverables of biodiversity group</p> <p>3.13 Disaster Risk Nexus ensures KPI and deliverables</p> <p>3.14 HEAA increases the number of bottom billion students</p> <p>3.15 BJIM increases the number of Community Engagement projects for bottom billions with sustainability elements.</p> <p>3.16 BJIM increases number of transfer knowledge projects with sustainability elements</p>



INSTITUTION  
KFA 8



**Governance**

## Introduction

### Institutional Excellence and Governance

**E**ssential to institutional development is the creation of enablers that support the vision, mission and values of APEX University to thrive and to progress towards excellence. Institutional excellence can be attained through international benchmarking, good university governance, sustainable financial management, internationalization initiatives, positive work culture and a conducive university environment. Among which, institutional governance and autonomy is particularly important to drive USM towards global excellence and ensure its contributions in nation building. Key Focus Area Eight (KFA8) consists of 30 Strategic Initiatives (SI) that were formulated to achieve institutional excellence and good governance.

**“ Institutional excellence can be attained through international benchmarking, good university governance, sustainable financial management, internationalization initiatives, positive work culture and a conducive university environment. ”**



## Strategic Goal 1: To Improve USM's Position as Top-10 University in the Asia Pacific in Selected Niche Areas

To improve USM's position as top-10 University in the Asia-Pacific region in selected niche areas (e.g., civil and structural engineering, chemical engineering, environmental studies), it is crucial for the University to

increase its regional and global connectivity as well as expand on collaborations. Three Strategic Initiatives (SI) have been drawn up to achieve this goal:

Table 23: Improving USM's position as one of the top-10 universities in the Asia-Pacific in selected niche areas

Strategies	Strategic Initiatives	Outcomes
(S1) Increase regional and global connectivity & collaboration through Alumni and sharing of expertise.	SI(1). Implement the Alumni Ecosphere Project. SI(2). Develop an Institutional Repository on strategic collaborations. SI(3). Enhance and expand the profile of USM Foundation	1.1 Improve USM's position as top-10 university in the Asia-Pacific in selected niche areas.

Collaborations with world-class universities and research institutes will increase USM's global excellence, visibility, competitiveness, capacity building and sharing of expertise, which contribute to the goal of becoming a top university. Hence, an Alumni Ecosphere Project is proposed to establish a database of USM staff's alma mater, which is an untapped network for the university. Staff who are alumni of top universities in the world (e.g., Massachusetts Institute of Technology, Harvard University, Oxford University) and in Asia (e.g., National University of Singapore, University of Hong Kong, Korea Advanced Institute of Science and Technology) can help to promote USM at the international level and facilitate networking with

their respective almae maters. In addition, staff with strong global network and alumni relations can also play a critical role in connecting USM with international organizations (UN, UNESCO, UNDP, World Bank) and research institutes for potential collaborations. As USM continues to enhance its global competitiveness through collaborations with various renowned institutions and organizations around the world, it is timely to develop an Institutional Repository to keep track and expand upon these strategic collaborations. In addition, the profile of USM Foundation should be enhanced to generate, strategize and manage funds to support USM in achieving its goal of becoming a top-10 university in the Asia-Pacific region by 2020.

## Strategic Goal 2 :To Achieve Excellence in Governance through Autonomy Empowerment

The second strategic goal is to achieve excellence in governance through autonomy empowerment. University autonomy can be defined as the overall ability of the University to act independently in pursuit of its mission, or the power of the University to govern itself without outside control. Full autonomy is essential for any university to achieve excellence in institutional governance, human capital development, innovation,

and internationalization to enable the university to move in full force to reach new heights. There are two levels of institutional empowerment. Internally, APEX governance will be empowered and accountable autonomy realized while externally, devolution of Ministerial power should take place to fully empower the APEX University.

Table 24: Achieving excellence governance through autonomy empowerment

Strategies	Strategic Initiatives	Outcomes
(S1) Empower APEX governance.	SI(4). Relook and assess the governance of Senate. SI(5). Transform existing policy on Senate. SI(6). Empower the Board of Governors (LGU).	1.1 Full autonomy without any interferences from the Ministry to achieve excellence in governance and enable USM to move forward in full force.
(S2) Ensuring autonomy with accountability for USM brand building and academic excellence.	SI(7). Reduce red tape and bureaucracy. SI(8). Increase accountability and responsibility in decision making.	
(S3) Devolution of Ministerial power to serve the core business of the university.	SI(9). Reduce intervention from the Ministries. SI(10). Ensure clear official and written devolution of power. SI(11). Explain pseudo-autonomy officially.	

The Senate structure and composition as well as its roles and responsibilities are crucial in ensuring good practices of academic governance. There is a need to relook and assess USM's Senate governance and its ability to make major decisions pertaining to academic matters. This includes, Senate's power to establish new academic units, to determine academic standards, teaching and learning methods as well as resolving faculty-related matters. Based on the findings, existing policy on Senate can be strengthened and transformed. In addition, the Board of Governors (LGU) for APEX University should be further empowered to govern and be the highest body that makes the ultimate decision for the University independently without being subject to outside control. It is important to note that universities do not attain excellence by the simple expedient of autonomy. Hence, USM will continue to implement Good Governance Practice by reducing red tape and bureaucracy as well as increasing

accountability in decision making to strengthen USM brand building.

In terms of external empowerment, devolution of Ministerial power to USM is important. Despite a certain degree of autonomy that has been granted, as a whole USM is still confronted by many restrictions and is often bound by various government rulings and circulars. Such 'pseudo-autonomy' has hindered USM from making decisions freely concerning institutional, finance, human resource and academic matters. USM is therefore determined to encourage the Government to enact a special act of Parliament under the USM APEX Act or its equivalent, making the university a separate autonomous body supported by the government. This will reduce intervention from the Ministry and ensure a clearer devolution of power to serve the core business of the university.



### Strategic Goal 3 (SG3): To Enhance Financial Sustainability

In line with the APEX transformation plan, financial sustainability is one of the key supporting mechanisms that can drive forward the institution. The philosophy of financial sustainability is to generate income and reduce cost without compromising efficiency and

standards in conducting the University's core functions. Strategic Initiatives were drawn up to achieve this goal, which cover output-based budgeting, generation of sustainable income, and reward system for cost-effective and impactful spending.

Table 25: Enhancing financial sustainability

Strategies	Strategic Initiatives	Outcomes
(S1) Realistic output-based budgeting	SI(12). Budget allocation based on fixed percentage (4%) of country's Gross Domestic Product (GDP). SI(13). Generate income through services offered by Centres of Responsibility (PTJ) (e.g., PIPPA, HUSM, CAATS, CDH).	1.1 Sustainable financial ground by ensuring stable & realistic annual budget allocation and increased capacity to generate income.
(S2) Capitalizing on USM expertise to generate sustainable income via proactive measures.	SI(14). Increase compliance to Standard Operation Procedures (SOP) in commercialization and consultancy. SI(15). Increase efficiency on intake of postgraduate students.	
(S3) Reward Pusat Tanggungjawab (PTJ) that is driven by cost-savings.	SI(16). Develop a reward system for cost effective and impactful spending. SI(17). Impose penalty on Centres of Responsibility (PTJ) that are not run on cost-saving practices.	



According to the Higher Education Blueprint (2015-2025), there will be continued Government investment of a large proportion of the national budget and GDP in the country's higher education system, however the quantum of annual budget allocation remains uncertain. OECD data shows that many countries (e.g., US, Canada, Korea, Japan) have fixed percentage of GDP allocated for universities budget annually (European Center for Strategic Management of Universities, 2010). A realistic allocation based on a fixed percentage (4%) of Malaysian GDP will certainly help USM to overcome budget uncertainties faced annually. Diversification of income source is a proactive measure to generate revenue and to alleviate the uncertainty of budget allocation. This is in line with the Government's requirement for public universities to implement revenue generation measures to support their own programmes, starting from 2015. Income generation through services offered by PTJs will be intensified, particularly the Center for Innovation and Productivity in Public Administration (PIPPA), Hospital Universiti Sains Malaysia (HUSM), Centre of Advanced Analytical Toxicology Services (CAATS) and Creative Design House (CDH).

Capitalizing on USM expertise in niche areas, the University will continue to increase income generation through commercialization and consultancy. To realize this goal, strategic initiatives need to be undertaken to increase compliance to Standard Operation Procedures (SOP) in commercialization and consultancy to increase competency and cost-efficiency.

In addition, universities, both public and private are experiencing increasing pressure in student recruitment, which has forced them to become

more 'entrepreneurial and strategic in implementing marketing initiatives to recruit not only enough, but the most eligible students. USM needs to be more aggressive in attracting international students, which is an important source of university revenue. Enhanced efficiency in postgraduate student intake will increase USM's competitiveness in the global market of higher education. To achieve sustainable funding and reduce operation cost, a reward system is proposed to recognize PTJs for cost-effective and impactful spending. An external review and evaluation of cost-saving initiatives can be performed so that good practices in cost-saving can be identified and adopted by all PTJs while penalties are imposed on PTJs not run on cost-saving practices.



## Strategic Goal 4 :To Intensify Internationalization, Visibility and Connectivity

Internationalization of HEIs in Malaysia is a key thrust under the National Higher Education Strategic Plan (PSPTN), a landmark document that shapes the focus and direction of the higher education system and its effort at going global. As stated in the Higher Education Blueprint (2015-2025), Malaysia aspires to be the hub of excellence in higher education internationally by 2020, with a target enrolment of 200,000 international students by 2020 and 250,000 by 2025. USM needs to step up its efforts at building a solid brand in order to sustain its position as one of the top recruiters of international students in the country. In the second phase of APEX transformation, positioning and visibility are crucial in the creation of a value proposition based on uniqueness and an image distinctive of the new-

age USM. The University shall capitalize on its status as APEX University and further strive to enhance its visibility as an institution that champions sustainability, offers quality education and empowers future talents who are globally excellent yet at the same time are able to contribute to national development. In addition, research can be a catalyst to spur USM to even greater heights in internationalization. The Ministry of Education encourages and facilitates the establishment of international research laboratories in Malaysia as impetus for R&D. To accelerate international collaborative research and programmes, USM will improve its database and the visibility of its academic expertise and professionals, networking and collaborative programs.



Table 26: Intensifying internalization, visibility and connectivity

Strategies	Strategic Initiatives	Outcomes
(S1) Increase visibility of USM academic and professional expertise	<p>SI(18). Improve the database and visibility of USM academic expertise and professionals.</p> <p>SI(19). Implement networking &amp; collaborative programs that enhance USM's visibility and competitiveness in niche areas.</p>	1.1 Increase USM's internationalization, visibility and connectivity.
(S2) Increase collaboration in niche areas for use, transfer and sharing of knowledge, facilities and technology.	<p>SI(20). Collaborate with world renowned universities and agencies.</p> <p>SI(21). Develop integrated database on high-end and sophisticated assets and facilities for common usage.</p> <p>SI(22). Generate income by optimizing integrated laboratory services.</p> <p>SI(23). Generate grant opportunities through consultation with various regional and global agencies.</p>	2.1 Increase collaboration to generate income.

### Strategic Goal 5: To Further Ensure Conducive University Environment and Working Culture to Harness Professional Mind Set

A high-performance organizational culture provides a university with its greatest source of competitive advantage. A positive work culture inspires staff to go the extra mile to make and execute good decisions. To further strengthen the work culture and environment of the APEX University, the “Semut-Man’ or “Ant-Man” Strategy is proposed. Ants are highly industrious, organized, loyal and operate as a unified entity, collectively working together to support the colony. Likewise, a healthy working culture at USM should encourage staff to stay motivated, industrious, and loyal towards the institution. Every employee should have a clear understanding of his or her roles and responsibilities and strive hard to accomplish the tasks within the desired time frame as per the set guidelines. Implementation of policies and transformation

measures is never a problem in organizations where employees follow a set culture and try their level best to achieve the organizational goals. Ants are also a particularly strong species, with the strength to carry 50 times their own weight, however, their success in so many environments has been attributed not just to their strength but also to their wisdom and positive traits (e.g., forethought, persistence, courage, cooperation and resilience). Hence, programs to improve the implementation of policy on work culture at USM should harness the ants’-like work culture and traits. In addition, continuous improvement programs will also be implemented to further promote a values-driven work culture at USM to ensure all staff uphold high level aof ethical standards when performing their tasks.

Table 27: Ensuring conducive university environment and working culture to harness professional mind set

Strategies	Strategic Initiatives (SI)	Outcomes
(S1) The ‘Semut-Man’ Strategy. Improve the implementation of policy on work culture and environment transformation.	SI(24). Implement programs that harness good work culture among the university’s human resource. SI(25). Implement sustainable continuous improvement programs. SI(26). Ensure all staff know and fulfil their respective roles. SI(27). Increase the standard accountability in decision making.	1.1 Further ensure conducive university environment and working culture to harness professional mindset.

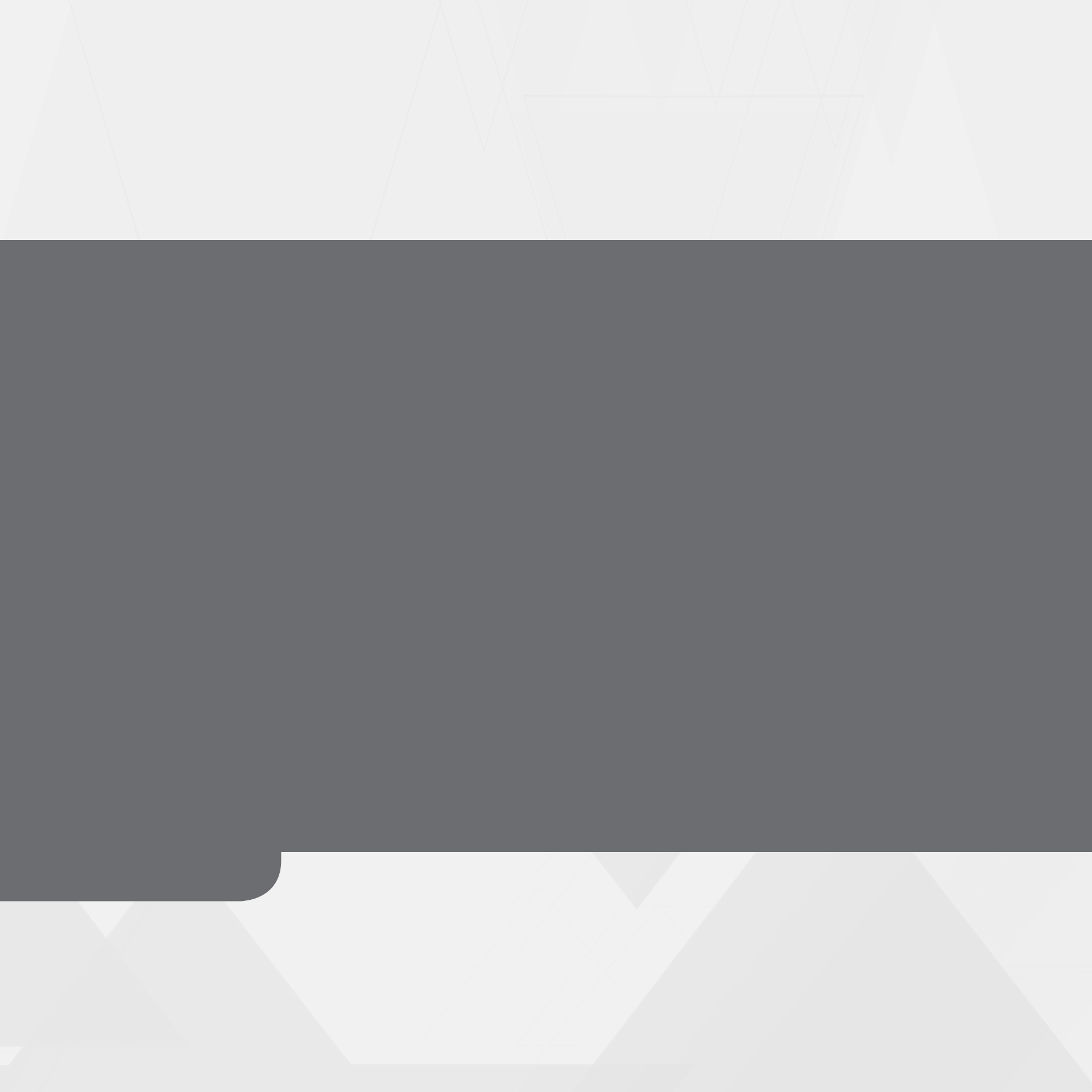
## Strategic Goal 6 : To Ensure that the SSU-USS is adopted by University Community

As emphasized in BUKU 2015, the spirit of 'Saya Sayang USM-SSU' (I love USM) should exist among each staff and be expressed in the form of volunteerism, contributing ideas and so on. The flood disaster in 2014 has clearly demonstrated that USM possesses many compassionate volunteers comprising top management, staff and students who were all driven by a strong spirit of volunteerism to help the flood victims. The concept of SSU has evidently been instilled into the heart (Qalbu), mind and behaviour of the

university community. This successful concept should be expanded to include 'USM Sayang Saya-USS' (USM loves me) as people need to feel a sense of belonging in order to find meaning in their work. A strong sense of belonging can lead to greater commitment and perseverance to accomplish the institutional mission. Furthermore, it helps the University to retain talents. To ensure that SSU-USS is adopted by the university community, the following strategic initiatives have been indentified:

Table 28: Ensuring the SSU-USS is adopted by the University community

Strategies	Strategic Initiatives	Outcomes
(S1) SSU-USS 'Saya Sayang USM-USM Sayang Saya'	<p>SI(28). Transform the people, the mind and the heart (Qalbu).</p> <p>SI(29). Building good values and principles based on strong ethics, integrity, accountability and compliance.</p> <p>SI(30). Strengthening staff wellness program to retain talent and inculcate sense of belonging.</p>	1.1 'Saya Sayang USM-USM Sayang Saya' is adopted by the whole University community.



# APPENDIX A



**KFA GROUPS**

# Key Focus Area Group 1 - Students



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