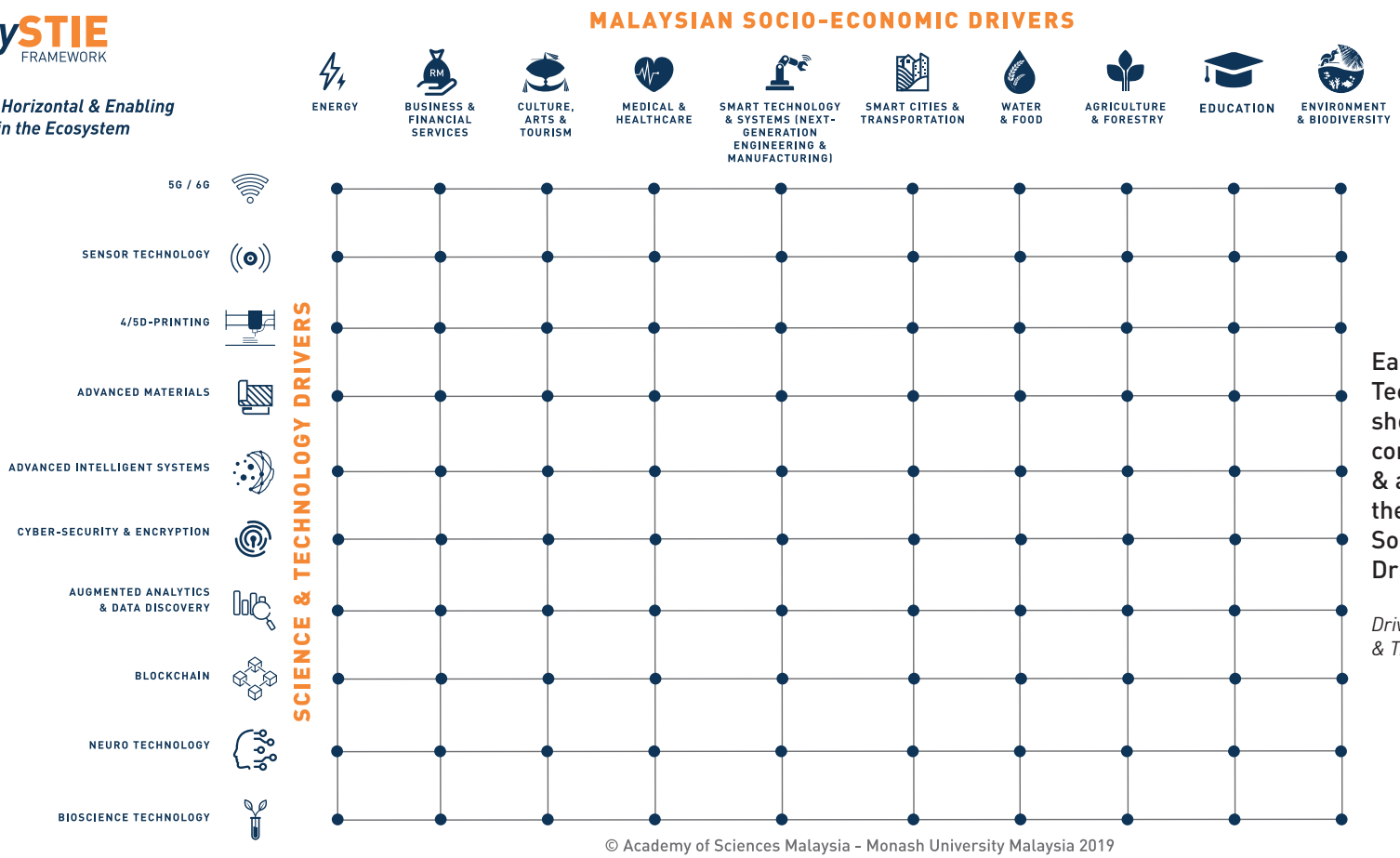
10 10 MySTIE FRAMEWORK

Building the Horizontal & Enabling the Vertical in the Ecosystem



Each Science & Technology Driver should explore core technologies & applications for the 10 Malaysian Socio-economic Drivers

Driving Fundamental & Translational Research

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Each Malaysian Socio-economic Driver should explore how the 10 Science & Technology Drivers will value-add and enhance their global competitiveness

SCIENCE & TECHNOLOGY DRIVERS 10

5G/6G

Next-generation mobile networks that enable higher frequencies, capacity and lower latency.

SENSOR TECHNOLOGY

High-performance sensors, including microelectromechanical systems (MEMS), magnetic materials and piezoceramics, wearable biosensors and printable wearable electrochemical sensors.

4D/5D-PRINTING

Printing using smart materials that change forms according to the environmental changes or responding to stimulus, and print parts as simultaneous multilayer curved layers, making the objects stronger and more cost competitive than 3D printing.

ADVANCED MATERIALS

New, stronger, durable and efficient heat and energy conducting materials that have wide industrial, biological, medical and other applications.

ADVANCED INTELLIGENT SYSTEMS

Encompasses big data processing, advanced robotics, artificial intelligence, machine learning, directed self-assembly, neuromorphic engineering and quantum computing to enable flexibility, adaptability, precision and efficiency in analyses, information processing and response.

CYBER-SECURITY & ENCRYPTION

Technologies, processes, practices and methods that protect information and communication systems (networks, devices and data), mitigating risks associated with malicious attack, digital hijacking, unauthorised access and damage to systems and data.

AUGMENTED ANALYTICS & DATA DISCOVERY

Advanced data discovery methods that enable users to gain insights into patterns of the data generated using various statistical methods, pattern recognition, machine learning, natural learning and other advanced data analysis tools.

BLOCKCHAIN

Digital ledger system that is democratic, incorruptible, efficient, verifiable and holds permanent record of every transaction of value among multiple economic agents.

NEURO TECHNOLOGY

Technology that enables the study of brain processes, brain-computer interface, decision-making, behaviour and neurological disorders.

BIOSCIENCE TECHNOLOGY

Technology that uses biological processes, systems or living organisms to manufacture products or produce technology based on molecular biology, bionics, bioengineering, genetic engineering and nanotechnology.

Source: Analytics by ASM, Nair, Ahmed, Vaithilingam and the team from Monash University Malaysia, 2020

10 SOCIO-ECONOMIC DRIVERS

ENERGY

This sector is constituted by a complex and inter-related network of entities involved in the production, management and distribution of energy to fuel the economy and improve the quality of life of the *rakyat*. This includes both renewable and non-renewable energy sources.

BUSINESS & FINANCIAL SERVICES

This sector encompasses services that support business functions broader economy, such as Information Communication Technologies (ICT), logistics, financial services and other professional services.

CULTURE, ARTS & TOURISM

Malaysia is a confluence of diverse range of people and cultures. This sector covers a wide array of activities including expression and application of creative content and artworks. Tourism sector leverages on the diverse cultural heritage and natural resources of Malaysia.

MEDICAL & HEALTHCARE

Medical and healthcare encompass all goods, services and payment mechanisms for prevention, restoration, cure, maintenance of one's physical, mental or emotional well-being.

SMART TECHNOLOGY AND SYSTEMS (NEXT-GENERATION ENGINEERING & MANUFACTURING)

Smart technology and systems that create resilient utilisation of resources through self-monitoring, troubleshooting, optimising and integrating manufacturing processes and supply chains. This allows for adaptive data-driven decisions and intelligent cyber-physical systems.

SMART CITIES & TRANSPORTATION

Smart cities and transportation involve integration of physical and natural infrastructure with advanced technologies to deliver sustainable, resilient, and prosperous living conditions.

WATER & FOOD

Water and food are core to the sustainable development of communities across the globe. This demands a well-integrated ecosystem to ensure water and food security to address the challenges of rising population, urbanisation, climate change and economic disparities.

AGRICULTURE & FORESTRY

Agriculture and forestry is an important socio-economic driver for Malaysia. Agriculture encompasses crops, livestock, and fisheries. Agriculture and forestry are key sectors for food security, employment and revenue generation for the country.

EDUCATION

Education spans from pre-school to post-doctoral and continuing education. The purpose of education is to nurture a creative society and a skilled workforce. The education sector is also an important revenue earner for the country.

ENVIRONMENT & BIODIVERSITY

Preserving and conserving the natural environment and biodiversity of Malaysia are important in harnessing its value for sustainable development. This requires a sustainable approach to unlocking the value of terrestrial and marine ecosystems.