



THINK BIG, THINK FAR:

Transforming Higher Education to Prepare Future-Ready Graduates - The SUTD Way

Prof Chong Tow Chong, President SUTD

A BETTER WORLD BY DESIGN.

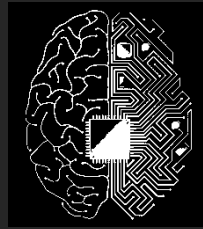
OUR FAST EVOLVING WORLD

The VUCA World

- Volatile
- Uncertain
- Complex
- Ambiguous

Challenges of the 21st century

Fast-changing, Multi-faceted & Multi-disciplinary



Digital Transformation



The 4th Industrial Revolution



Ageing Society



Security



Rapid Urbanization



Global Warming



Sustainable Development



Unknown

Universities must transform
To prepare future-ready graduates

Reimagining Higher Education and Research:

- The BIG Questions

If you were to create a world class university from scratch for the 21st century, what would you do?

Intellectual Footprint?

Organizational Structure?

Curricula & Degrees?

Teaching Approach?

Research Approach?

Lifelong Learning?

Industry partnership?

Use of Digital Technology?

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Establishment of SUTD in Singapore (2009)

To define the future of Architecture, Engineering and Computing education so as to nurture **technically-grounded leaders and innovators** to serve societal needs, with a focus on Design, through an integrated multi-disciplinary education, research and innovation

Research Intensive
University

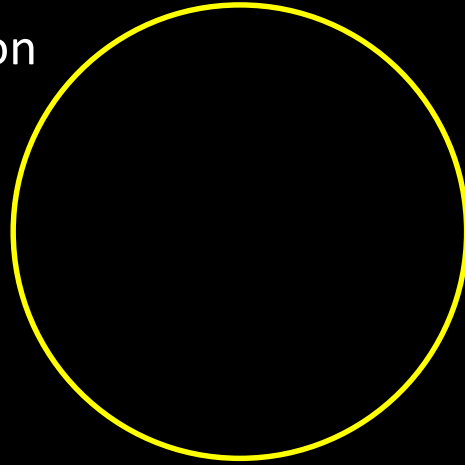
Strategic Partnerships
(East & West)

Strong focus in
Multidiscipline & DESIGN



Integration of Education,
Research and Innovation

Education



1 Breaking down silos, bring together cross-disciplinary learning

4 Pedagogical Innovation for active & lifelong learning

2 Skills & Attitudes beyond book knowledge

5 Integrated Partnership with Industry in education, research & entrepreneurship

3 Flexibility, Choice & Diversification

Breaking down silos and bringing together cross-disciplinary learning, digital competency, design- and human-centric education

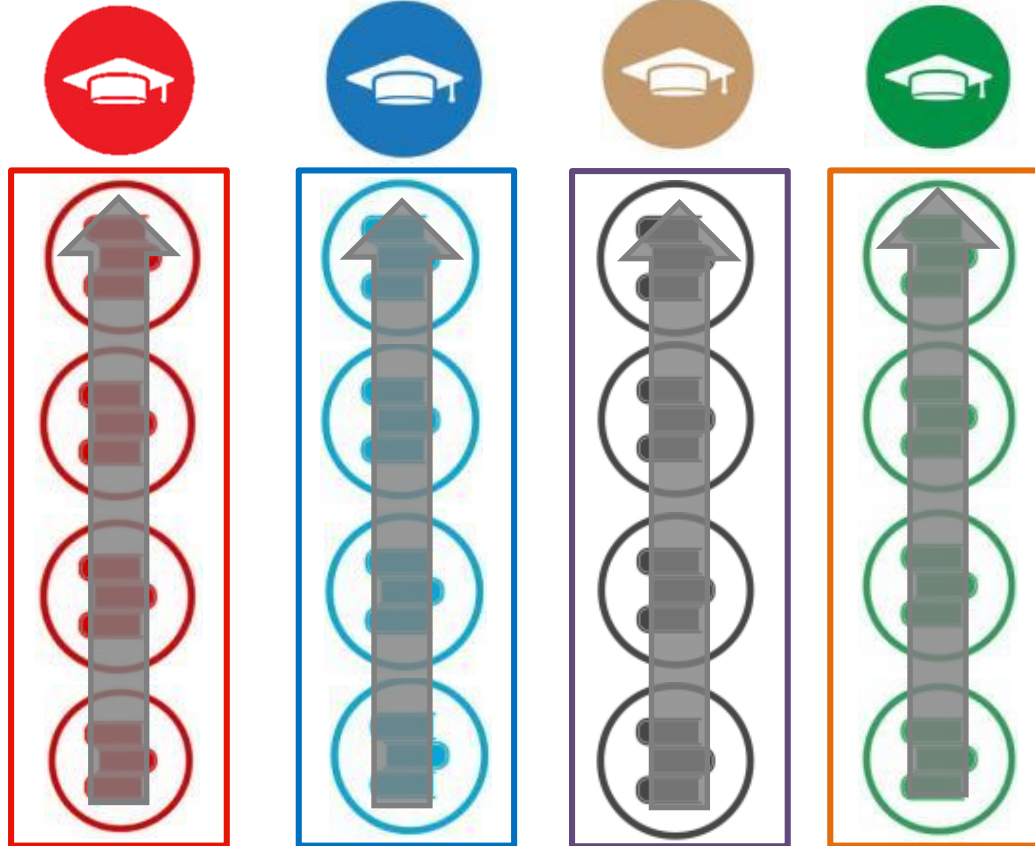
Traditional Engineering Disciplines:

Specific Disciplines:

- Civil Engineering
- Mechanical Engineering
- Electrical Engineering
- Etc...

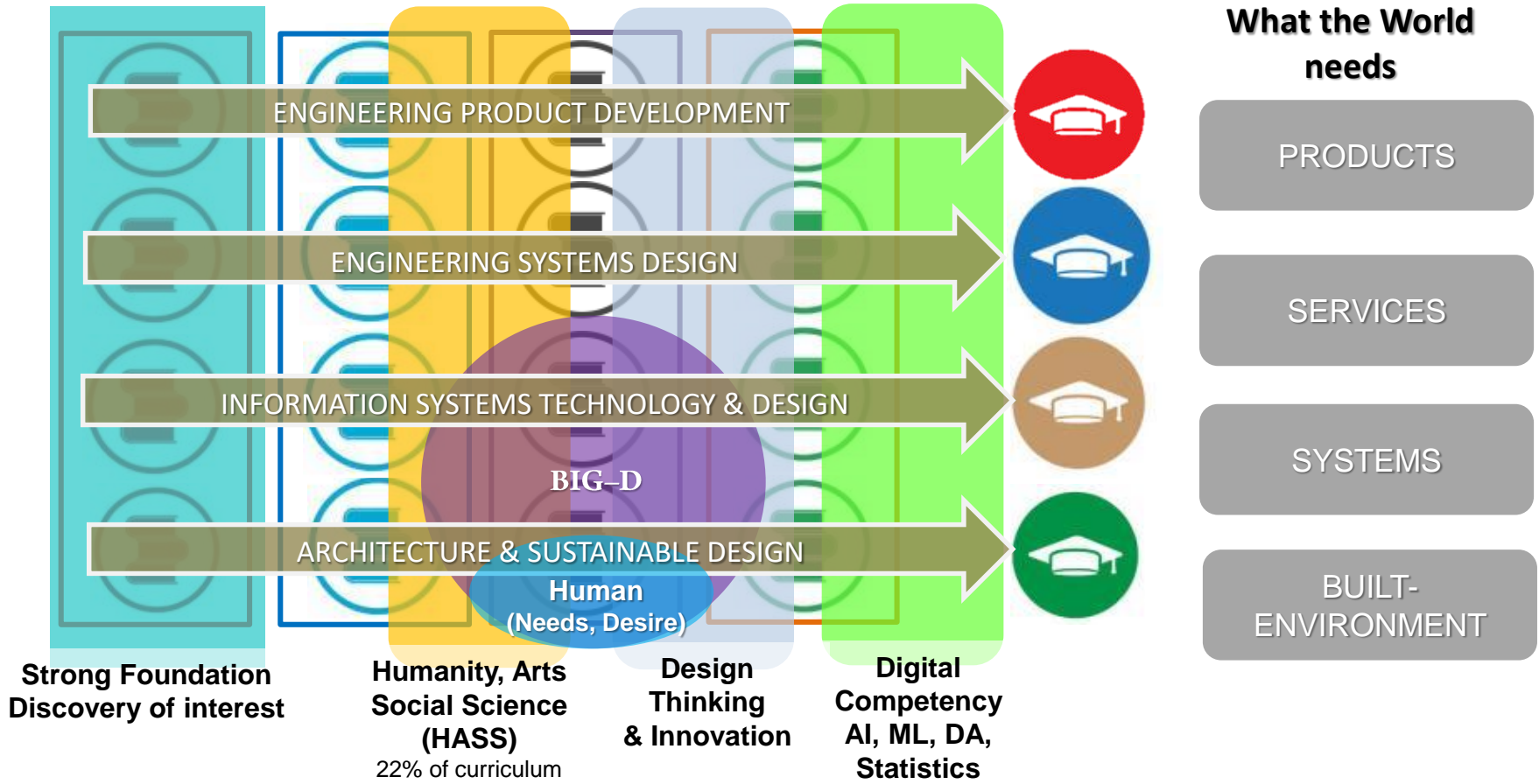
Specific Industrial Segments:

- Aeronautical Engineering
- Chemical Engineering
- Nuclear Engineering
- Computer Engineering
- Etc...



1

Breaking down silos and bringing together cross-disciplinary learning, digital competency, design- and human-centric education



BIG Design

Every

Across

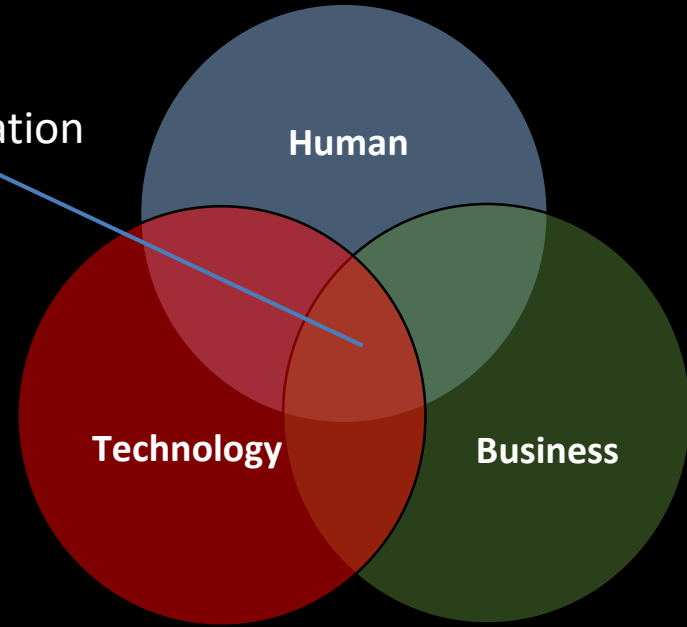
one
Subject (1D)

Subjects (2D)

Years (3D)

Pillars (Capstone)

Innovation



Students typically complete more than 20 design projects

Develop Skills & Attitudes beyond book knowledge

- Creative thinking
- Problem solving
- Synergizing
- Social and emotional
- Empathy
- Communication
- Lifelong learning

Skills

Attitudes

- Passion
- Collaboration
- Growth mindset
- Dissatisfaction with the status quo
- Willingness to take risks and fail
- Entrepreneurial spirit



Ability is what you're capable of doing.
Attitude determines how well you do. - Lou Holtz

Knowledge

2

Develop Skills & Attitudes beyond book knowledge

Cohort-based, Active, Interactive and Collaborative Learning

Foster Creative thinking, problem solving, collaboration, communication.

AT SUTD,
WE HAVE AN
11:1
STUDENT
TO
FACULTY
RATIO

OUR WAY OF
LEARNING IS
HANDS-ON
COLLABORATIVE
INTERACTIVE

THEORIES ARE BROUGHT
TO LIFE
AND YOU LEARN BY
EXPERIENCING THEM.

Peer-to-peer learning. Active learning



Reconfigurable to different arrangements according to different modes of instruction

Time and Space for Self

*Pursue passion and interests
Get out of comfort-zone
Leadership and Entrepreneurship
Residential for Freshmore terms
No class on Wed and Fri afternoons*



**Global Exposure
100% Opportunity for All**

46 institutions in 21 countries



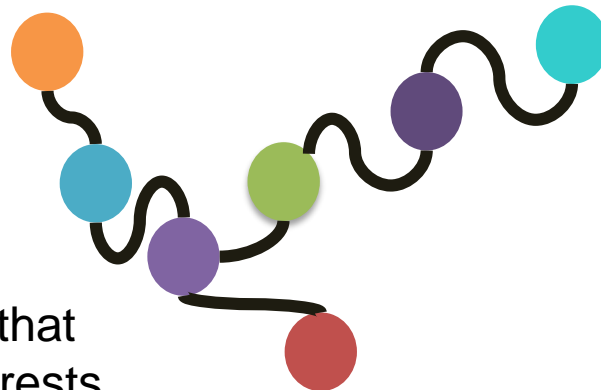
3

Flexibility, Choice & Diversification for *DIFFERENT PATHWAYS*

PRESCRIPTIVE



SELF-DIRECTED,
FLEXIBLE



- Not one-size-fits-all
- Self-directed
- Choose a pathway that suits talent and interests

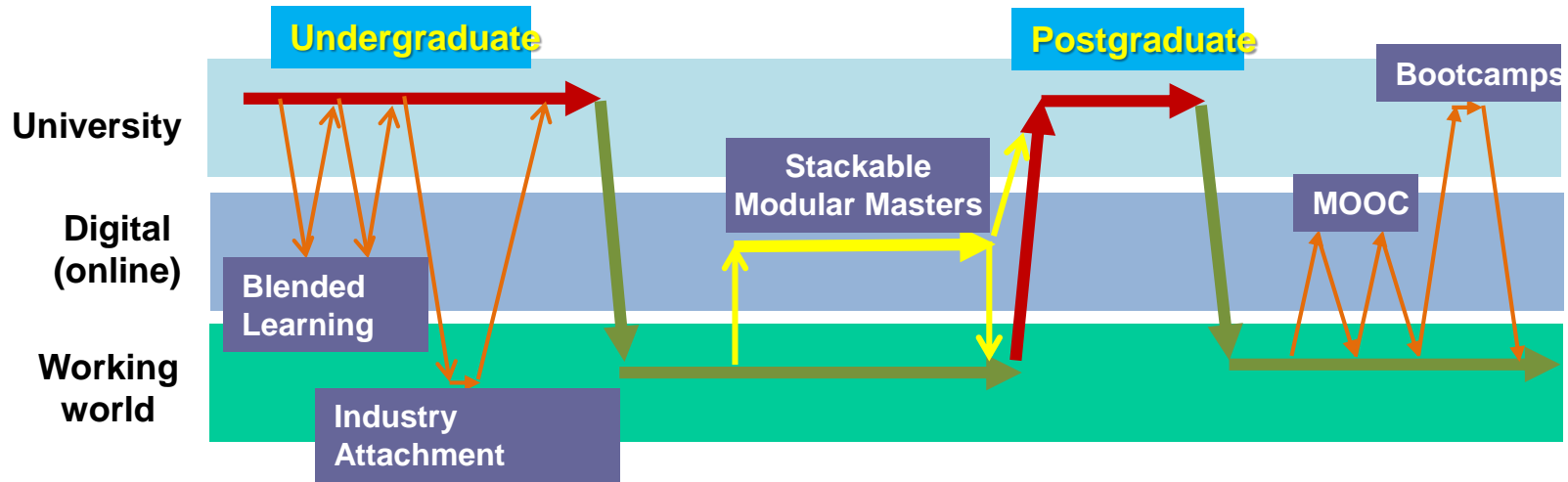
Minors

Industry
Sectors

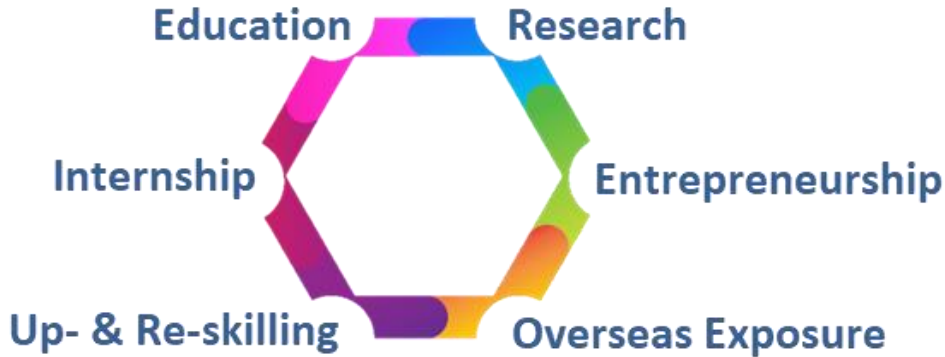
Tracks within
Pillars

4

Active & Lifelong Learning across multiple avenues SCALABLE to Large and Diverse Student Cohorts



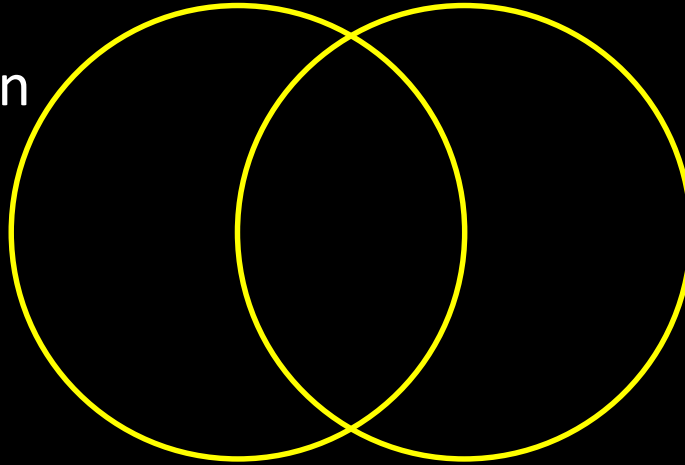
- To be future-ready, graduates have to learn something new multiple times in their working lives
- Less pressure for university to front load knowledge during formal years of UG studies



- ❖ Co-create with industry
 - to provide “sector-based” curriculum
 - to provide internship and overseas exposure
- ❖ Build R&D capabilities
 - to support industry transformation
 - Set-up Corporation Labs on campus
- ❖ Re-train and upskill workforce
 - to bridge the competency gaps
- ❖ Translation to the real-world
 - to spin-off research output
- ❖ Nurture a ready pool of technically-grounded graduates
 - to meet industry’s demand for “newer” workers

Education

Research



- Cross-disciplinary
- Design, Human-centric
- Experiential learning
- Overseas exposure
- Industry -relevant



SUTD-LTA
Transport Research
Centre



UROP Undergraduate Research Opportunity Program



About 55% of Students participated in UROP

SHARP SUTD Honors and Research Program



Capstone Integrated design projects 90% sponsored by industry



Sharpening Creative thinking &
Problem solving skills

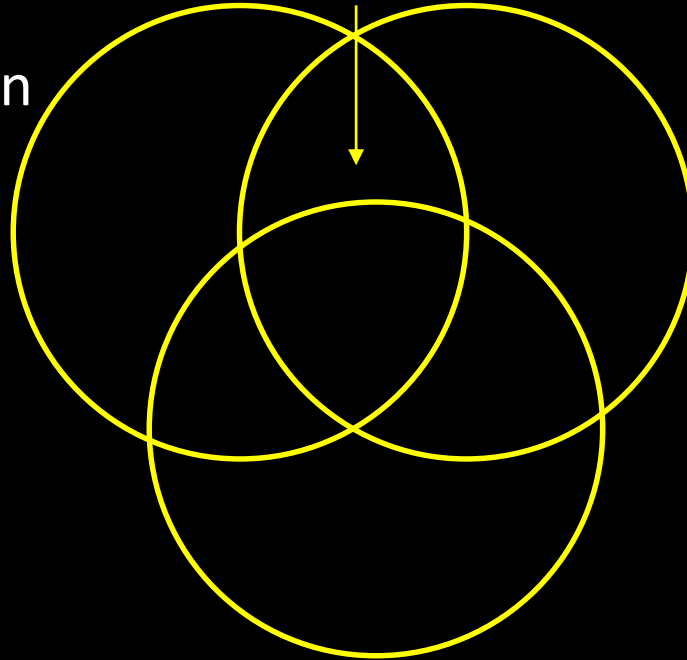
Education

- Cross-disciplinary
- Design, Human-centric
- Active learning
- Overseas exposure

Research

- Discovery
- Multi-disciplinary
- UROP/SHARP
- Capstone/Real-world problems

Innovation



Entrepreneurship: Nurturing innovators

To create entrepreneurial ecosystem that is fully integrated within the fabric of SUTD

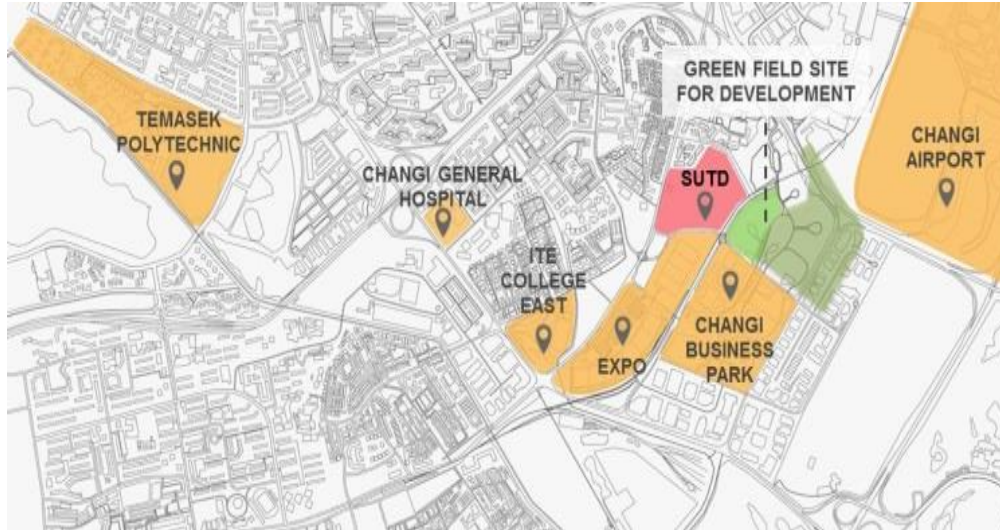
Year	JAN-APRIL	MAY-AUG	SEP-DEC
Y1		Term 1 IDEATEsomething	Term 2 BUILDSomething 3.007 Introduction to Design Module
Y2	Term 3 LAUNCHsomething	Entrepreneurship Overseas Exposure	Term 4 Create4Good Challenge 02.302 Business Culture and Entrepreneurship in China Module
Y3	Term 5 C4G Immersion Program to regional countries	Entrepreneurship Overseas Exposure	Term 6 30.111: Entrepreneurship Module
STEP	Entrepreneurship Courses @Berkeley	Work Immersion Experience @Bay Area San Francisco	Entrepreneurship & Management Courses @ University in China
Y4 STEP Y5	Term 7 Entrepreneurship Capstone	Term 8 Entrepreneurship Capstone Startup Pitch Day Shenzhen Manufacturing Bootcamp (being planned)	



41 Start-ups to date
(32 Start-ups + 9 spinoffs using SUTD IPs)



Building an Innovation Ecosystem (People, Places, Programs)



- Foster strategic partnerships with key partners in ecosystem
- Develop new capabilities to support future economy
- Advance R&D and technology adoption through test-bedding
- Create innovative enterprises for socio-economic impact



ACADEMIA

SUTD as focal IHL to foster collaboration

ANCHORS

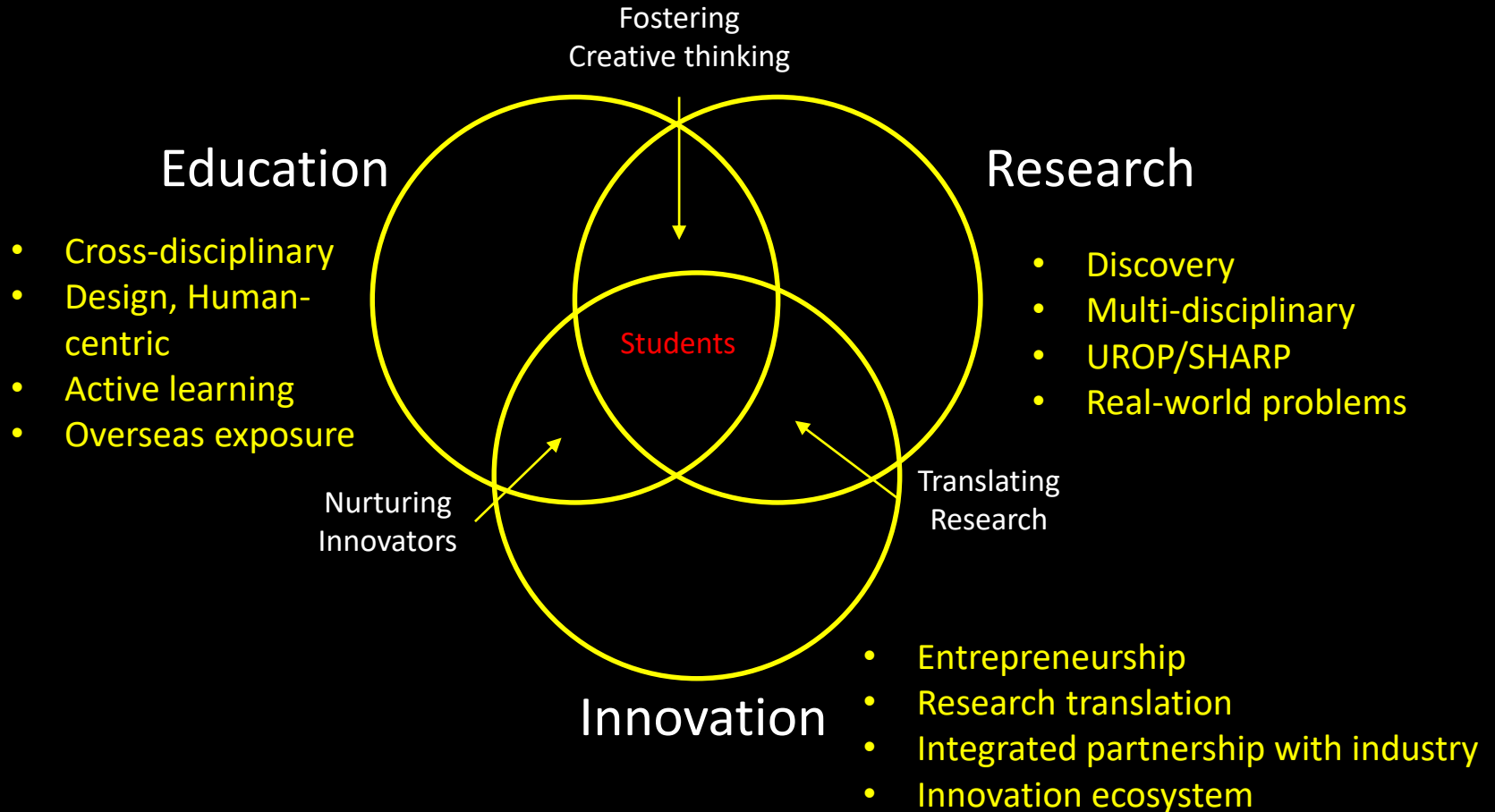
Pool of potential industry partners in surrounding business park

ACCELERATORS

Work with agencies to establish space for incubators and accelerators

AVENUE

Availability of SUTD as test-bed and Changi for pilot trials



Industry Ready, Global Ready, Future Ready

Industry Ready

Better prepared for new industries, jobs, and workforce.

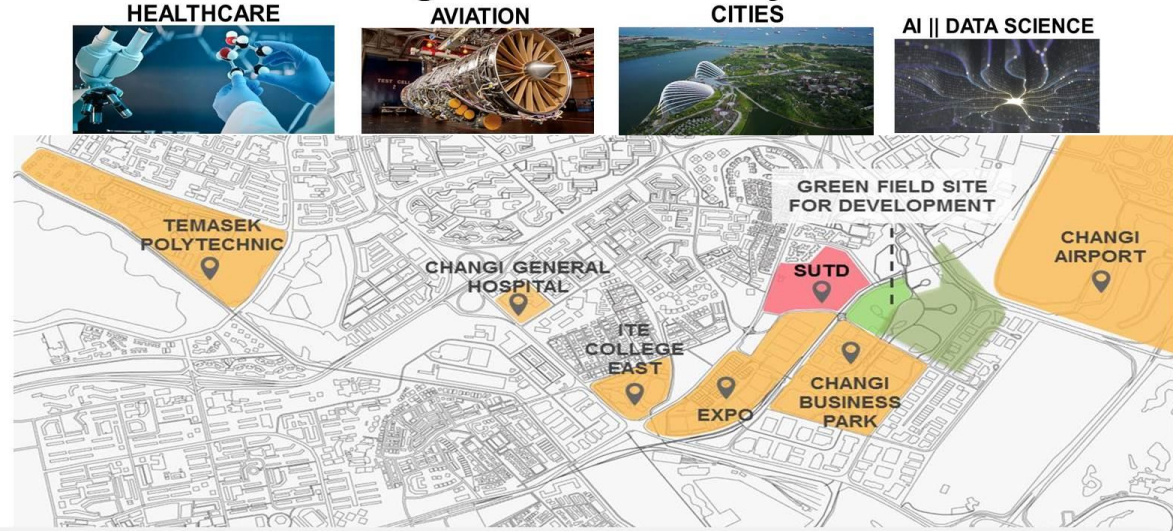
Global Ready

Adept and excel at working in the region from gained experiences.

Future Ready

Develop a love for lifelong learning to position for future possibilities.

Changi Innovation Ecosystem



Focusing on multi-disciplinary, human-centric education and a growth mind-set of innovation and entrepreneurship to resolve challenges in the Physical-Digital-System world.



The 4th Industrial Revolution



Rapid Urbanization



Internet of Things



Ageing Society



Global Warming



Security



Sustainable Development

ON THE RIGHT TRACK ?



How our Graduates Perceive Themselves

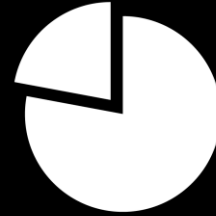
Significantly above the university sector average particularly in:

- **Multidisciplinary knowledge and skills**
- **Creativity and innovation**
- **Critical Thinking and Problem Solving**

Good Graduate Employment Results

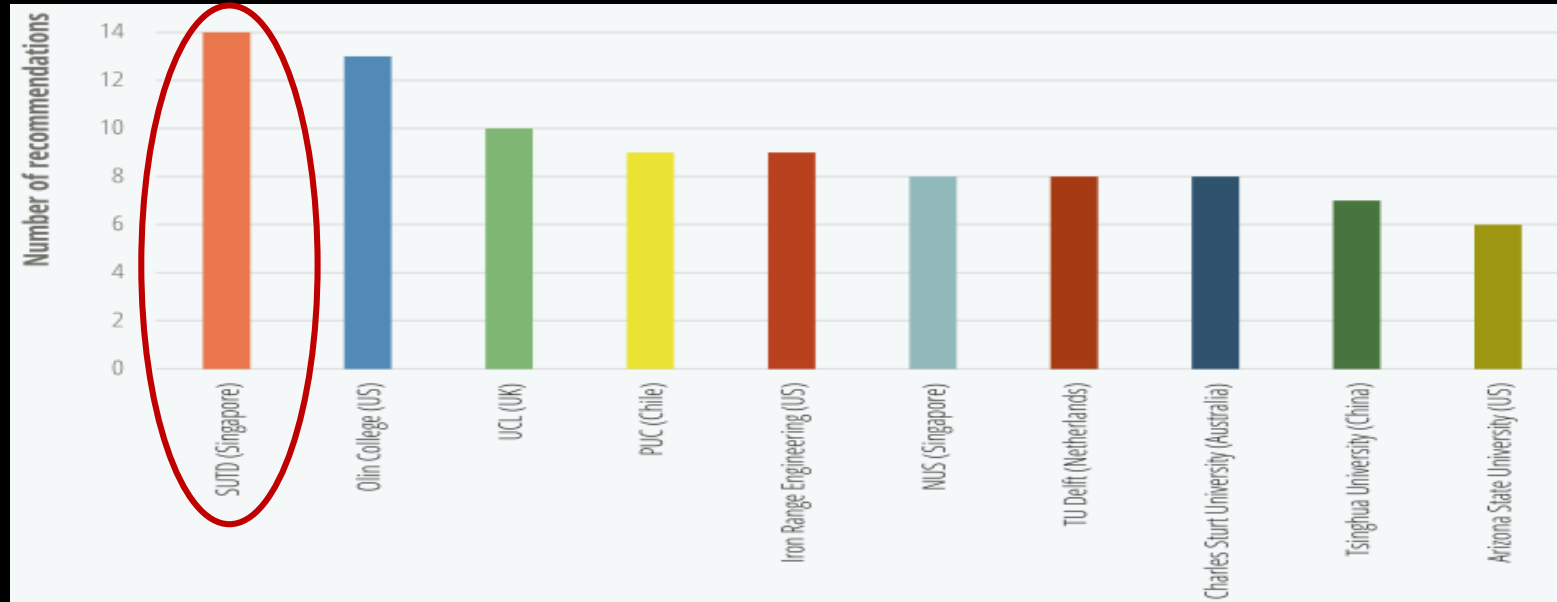



**EMPLOYED
WITHIN 6 MONTHS
OF GRADUATION**



**SECURED JOBS
IN 78% OF
SINGAPORE'S KEY
INDUSTRIES**

SUTD topped list of emerging engineering Education in the world



A large group of graduates in black gowns with yellow stoles are celebrating on a lawn in front of a traditional Chinese pavilion. Many are throwing their black mortarboards into the air. A modern multi-story building is visible in the background.

Think Big, Think Far
The future is ours to create