ITB Entreprenerial University

Temu Awal Semester 2017/2018

Bandung, 15 Agustus 2017

Outline

Definisi dan Konsep Entrepreneurial University | 01

ITB menuju Entrepreneurial University | 02

Guiding Measurement for Entrepreneurial Universities: | 03
(A).OECD (B). MIT Skoltech Initiative

Definisi dan Konsep Entrepreneurial University

Five mega-trends in higher education sector

Democratization of knowledge and access :

- Ubiquitous content
- Broadening of access to higher education
- Increased participation in emerging markets

Contestability of Market and Funding

- Fiercely competitive domestic and international student markets
- Challenges to government fundings
- Competing for new sources of funds

Drivers of Change

Digital Technologies

- Device-MOOCs and the rise of online learning
- Digital technologies in campus-based learning
- Blended learning

Global Mobility

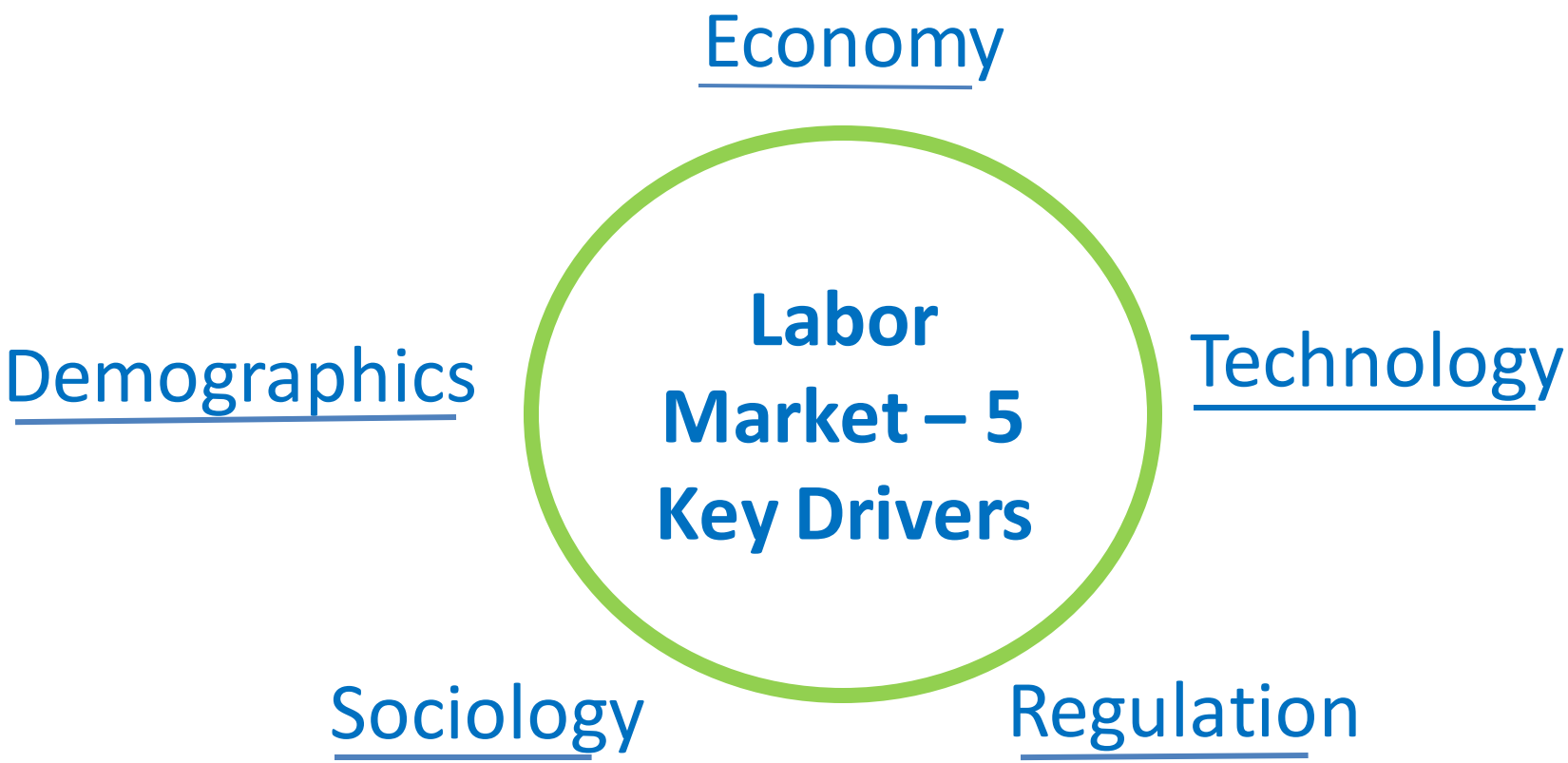
- Emerging markets become global-scale in the international student markets
- Emerging of elite, truly global university brands
- Academic talent increasingly sourced from emerging market

Integration with Industry

- Scale and detph of industry-based learning
- Research partnership and commercialization
- Industry as competitors in sertification and delivery of content

Source: Earnst & Young in 5th ASEM Rector Conference; Alain Dehaze, Prague April 2016

Five Key Drivers –Labor Market



Source: Adeco Group in 5th ASEM Rector Conference; Alain Dehaze, Prague April 2016)

- Economy: today's globalised economy faces continuous and unprredictable change. Flexibility is a must to cope with volatility and stay competitive

- Technology: **1 in 2 jobs under threat** from **computerization** by 2030

  - 47% of US jobs are at risk from automation, but not all cities have the same job risk, Malaysia 67%, China 77%,Thailand 72%, Cambodia 78%, Ethiopia 85%
  - Million of new job profiles created and skills needed
  - **60% of young people** entering the world of work by **2025** will perform **jobs not existing today**

- Demographics: the era of aging

  2035 young generation predicted to halve

  differences in labour supply and demand across geographies

- Sociology : Three generations at work
  - Boomers 8%
  - Gen X/Y 76%
  - Gen Z 16%
- Regulation: boost talent competitiveness to be “Talent Champions” Countries:
  - Flexible labour markets
  - Talent mobility
  - Top level education
  - Vocational training

KEMANDIRIAN BANGSA

INOVASI TEKNOLOGI

ENTREPRENEURIAL UNIVERSITY

Global Trends

(Adapted from: Roger C.Y. Chen – The Transformation into an Entrepreneurial University: The Experience of First Tech, 2016)

UNESCO

World Declaration on Higher Education in 1988

- Developing **entrepreneurial skills and initiative** should become major Concerns of higher education

European Union

Lisbon Strategy in 2000

- **Entrepreneurship** is one of the **new basic skills** to be provided through **lifelong learning**

U.S.

Obama's Presidential Proclamation in 2012

- November is the National **Entrepreneuship** Month
- November 16th is the National **Entrepreneurs'** Day

Malaysia

National Higher Education Action Plan (2007-2010)

- To create an **ecosystem of entrepreneurship education** in higher learning institution is a must

Indonesia

Hari Kebangkitan Teknologi Nasional 10 Agustus 1996

Tahun 2014 Presiden Joko Widodo: Program Nawa Cita
Butir 7 : Kemandirian Ekonomi

Sejak Tahun 2014 Menteri Ristek Teknologi dan Pendidikan Tinggi:

- Program Hilirisasi Produk Riset
- Pembentukan Direktorat Jenderal Penguatan Inovasi
- Pembentukan Direktorat Jenderal Penguatan Riset dan Pengembangan
- Pembentukan Direktorat Jenderal Kelembagaan Iptek Dikti
- Program dan Anggaran Riset, Inovasi, Technopark, Pusat Unggulan Iptek, …
- Sejumlah Perguruan Tinggi Indonesia menuju Entrepreneurial University
- ITB secara formal mendeklarasikan untuk bergerak dari Research University menuju Entrepreneurial University (20 Januari 2015)
- Banyak PTN – PTS yang melakukan inovasi dan kerjasama industri

Characteristics of the Generation of Universities

CHARACTERISTICS OF THE GENERATIONS OF UNIVERSITIES			
Indicators	**1st generation**	**2nd generation**	**3rd generation**
Objective	**Education**	**Education + research**	**Education + research + know-how exploitation**
Role	**Defending the truth**	**Discovering nature**	**Creating value**
Method	Scholastic	Modern science, Monodisciplinary	Modern science, Interdisciplinary
Creating	Professionals	Professionals + scientists	**Professionals + scientists + entrepreneurs**
Orientation	Universal	National	Global
Language	Latin	National languages	English
Organization	Nationes, faculties, colleges	Faculties	University institutes

Sumber: 3RDGENERATION UNIVERSITIES - A.Demir November 4, 2013

Mission of 3GUs

To advance learning and knowledge through ***teaching and research****, particularly:*

(i) in science, technology, engineering, management and business studies; and at the postgraduate level;

(ii) to assist in the economic and social development of …….. the region.

Definitions of an Entrepreneurial University

…Entrepreneurial University is defined as a university that has the ability to **innovate, recognise and create opportunities**, work in teams, **take risks** and **respond to challenges** (Kirby, 2002a), on its own, seeks to work out a substantial shift in organisational character so as to arrive at a more promising posture for the future (Clark, 1998).
In other words, is a **natural incubator** that provides support structures for teachers and students to **initiate new ventures: intellectual, commercial and conjoint** (Etzkowitz, 2003).”

Sumber: A LITERATURE REVIEW ON ENTREPRENEURIAL UNIVERSITIES: AN INSTITUTIONAL APPROACH: Maribel Guerrero-Cano David Urbano, David Kirby A Working Paper in the Documents de treball d'economia de l'empresa series (2006) updated

Definition of Innovation

(Wissema, J.G, 2009)

The successful introduction of something new, successful as shown by acceptance in the market or other use. An innovation is often based on an invention. If the innovation substantially changes social practices, it is called disruptive innovation

Definition: Entrepreneurship

Steven J. DeKrey, Ph.D.
President, Asian Institute of Management

- The process of identifying and starting a business venture, sourcing and organizing the resources while taking the risks and reaping the rewards!
- An entrepreneur commercializes an innovation!
- Identifying an unmet need and filling it!

SHIFTING PARADIGM OF THE ROLE OF UNIVERSITY

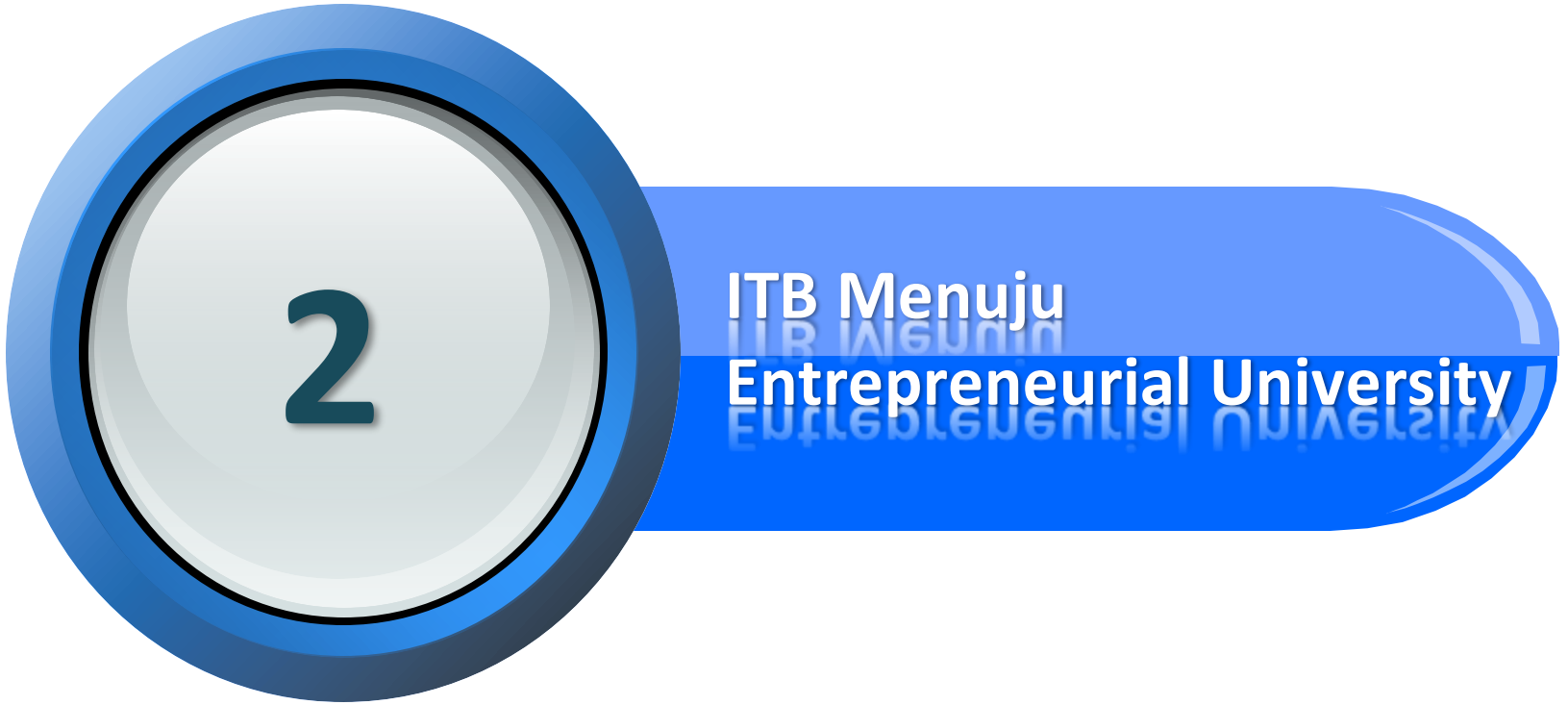
" ….university encompasses a 'third-mission' of economic development in addition to research and teaching." Readings (1996)

ULTIMATE CONTRIBUTION	PEOPLE EXPECTATION	MAIN PERFORM. INDICATOR
INNOVATING TO DEVELOP LOCAL AND NATIONAL COMPETITIVENESS	AGENT OF ECONOMIC DEVELOPMENT	# INNOVATION, # EMPLOYMENT # INDUSTRY # Rp GENERATED
TRANSFERING CULTURE, KNOWLEDGE, TECHNOLOGY TO SOCIETY AND INDUSTRY	AGENT OF CULTURE, KNOWLEDGE, TECHNOLOGY TRANSFER	# INNOVATION, # EMPLOYMENT # INDUSTRY # Rp GENERATED
RESEARCHING BASIC AND APPLICATIVE PROBLEMS	AGENT OF RESEARCH	# PUBLICATION # PATENT # CITATION UNIVERSITY RANKING
EDUCATING PEOPLE	AGENT OF EDUCATION	# GRADUATE EMPLOYABILITY WAITING TIME

PERLU REFORMASI PENDIDIKAN TINGGI (TERMASUK RESTRUKTURISASI DIKTI) SEHINGGA DISAMPING MENGHASILKAN LULUSAN, RISET, TRANSFER TEKNOLOGI KE MASYARAKAT, PERGURUAN TINGGI JUGA MENGHASILKAN INOVASI YANG BISA MENINGKATKAN DAYA SAING DAN KESEJAHTERAAN MASYARAKAT DAN BANGSA

Governments across the world are looking to technology innovation as a driver for national economic growth, and
to universities as the incubators of this national capacity

(MIT Skoltech Initiative)


2
ITB Menuju
Entrepreneurial University

Statuta ITB - PP No. 65 Tahun 2013
Pasal 5 Ayat (1)

ITB merupakan
universitas penelitian
yang mengembangkan
ilmu pengetahuan, teknologi, seni, ilmu sosial, serta ilmu humaniora
dan yang diakui dunia untuk
memajukan dan mewujudkan bangsa
yang kuat, bersatu, berdaulat, bermartabat dan
sejahtera.

ITB - Entrepreneurial University

Universitas penelitian yang mengembangkan ilmu pengetahuan, teknologi, seni, ilmu sosial, serta ilmu humaniora dan memiliki kemampuan **inovasi** untuk menjawab **tantangan dan peluang dalam rangka** meningkatkan **nilai tambah ekonomi serta sosial** untuk **memajukan dan mewujudkan bangsa** yang kuat, bersatu, berdaulat, bermartabat dan **sejahtera.**

EU = Universitas penelitian ++

- Inovasi
- Nilai tambah ekonomi
- Nilai tambah sosial
- Mendukung bangsa yang kuat, bersatu, berdaulat, bermartabat dan sejahtera

3 Key Peformance Indicators ITB-EU

- Excellence in teaching and learning
- Excellence in research (+Community Services)
- Excellence in innovation

3 Main Graduates ITB-EU

- Professionals
- Scientists
- Entrepreneurs

Excellence Teaching & Learning

Akreditasi Nasional/BAN :

S1 :89,3% A; S2 : 84,6% A; S3 :92,3%

Akreditasi Internasional:

No	Lembaga	Jumlah Prodi
1	ABET	9
2	ASIIN	11
3	KAAB	2
4	RSC	1
5	ABEST21	1
6	AUN-QA	1
7	JABEE	1
	JUMLAH	**26**

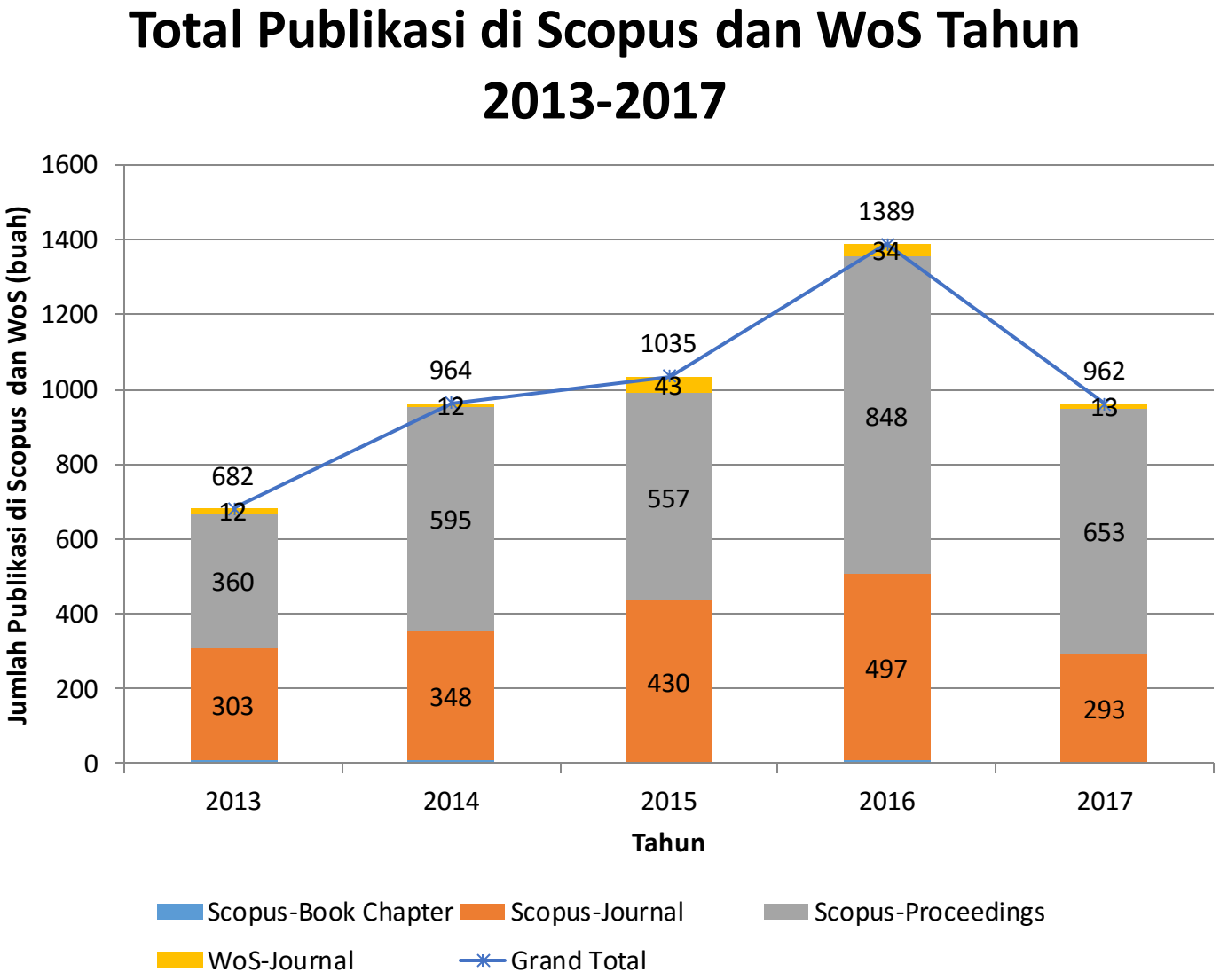
Excellence in Research

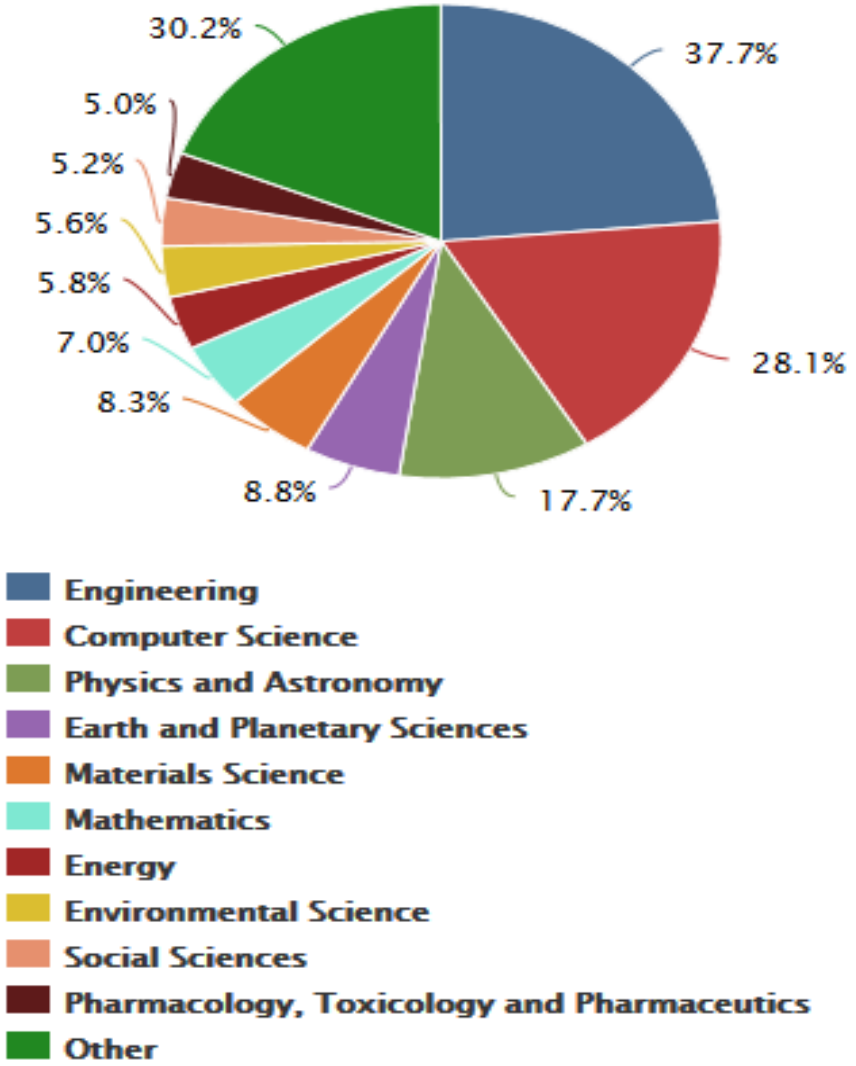
Interdisciplines

Pusat Unggulan IPTEKS (PUI)

- PUI Broadband Wireless Access
- PUI Nanosains & Nanoteknologi
- PUI Teknologi Transportasi Berkelanjutan
- PUI Teknologi Pertahanan & Keamanan
- Project SHERA + MIT (Sustainable Transportation Technology)

Excellence in Research





nature International weekly journal of science

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NATURE | LETTER

An early modern human presence in Sumatra 73,000–63,000 years ago

K. E. Westaway, J. Louys, R. Due Awe, M. J. Morwood, G. J. Price, J.-x. Zhao, M. Aubert, R. Joannes-Boyau, T. M. Smith, M. M. Skinner, T. Compton, R. M. Bailey, G. D. van den Bergh, J. de Vos, A. W. G. Pike, C. Stringer, E. W. Saptomo, Y. Rizal, J. Zaim, W. D. Santoso, A. Trihascaryo, L. Kinsley & B. Sulistyanto

Affiliations | Contributions | Corresponding author

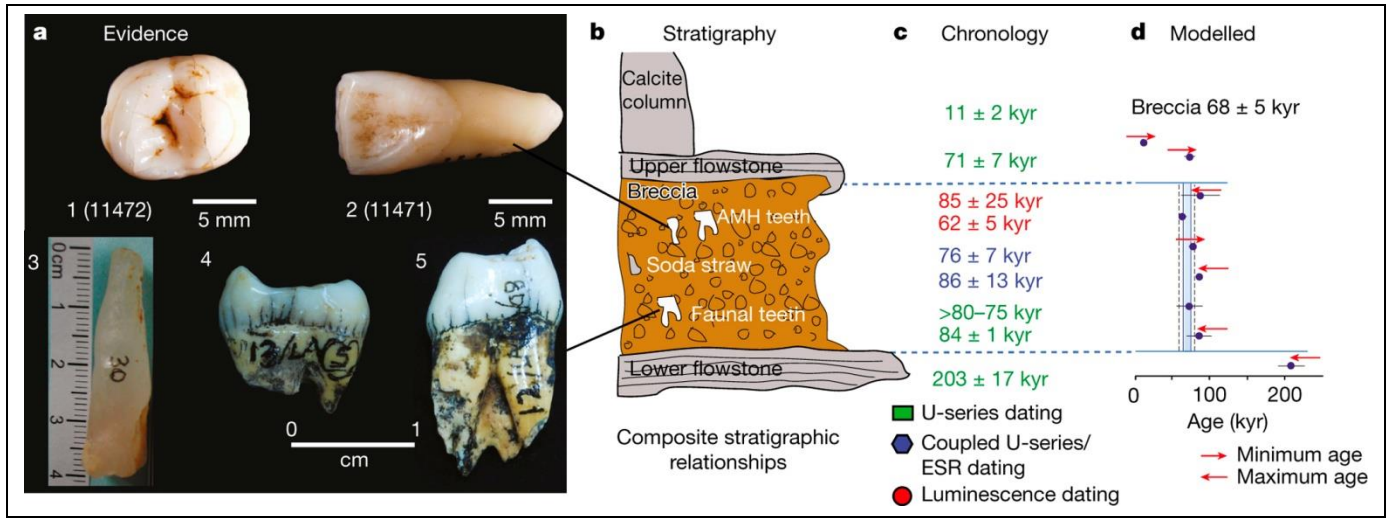
Nature (2017) | doi:10.1038/nature23452

Received 30 March 2017 | Accepted 29 June 2017 | Published online 09 August 2017

Prof. Dr. Ir. Jahdi Zaim

Dr. Ir. Yan Rizal R ., Dipl. Geol.

nature



K E Westaway *et al. Nature* 1–4 (2017) doi:10.1038/nature23452

Excellence in Research

World Rank

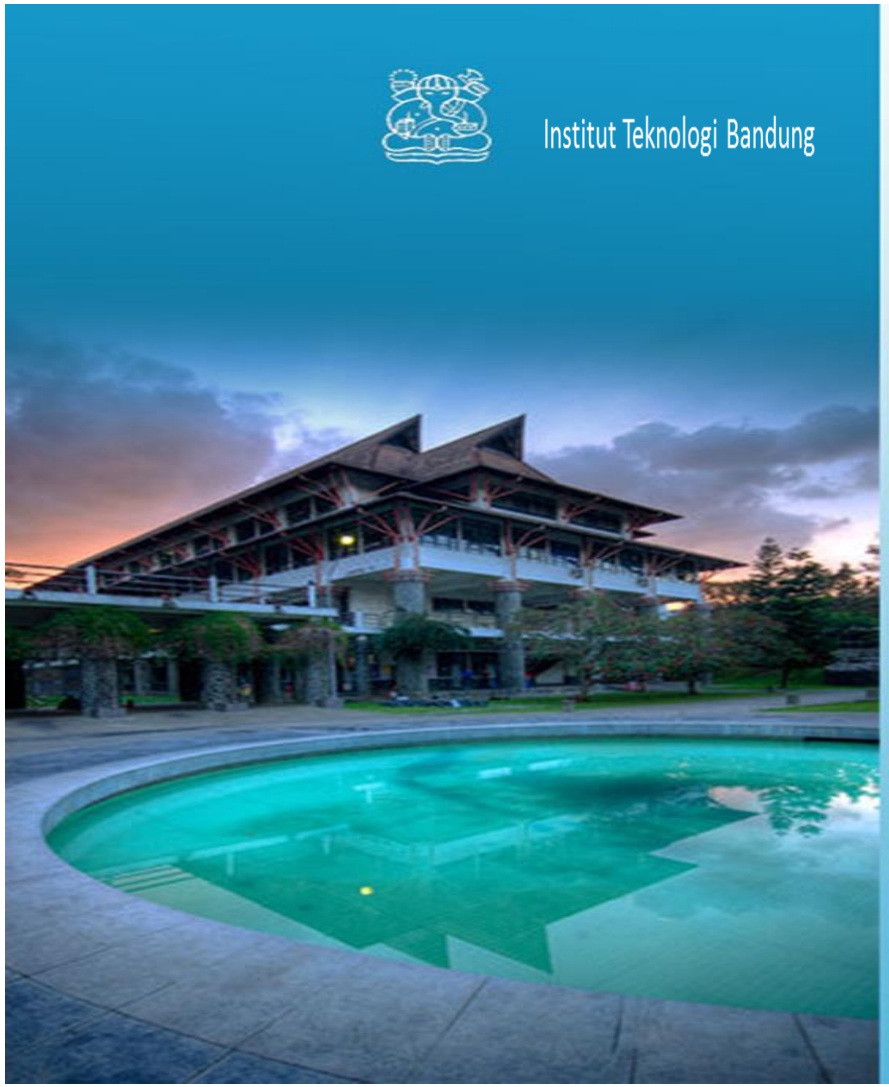
THE: 801-980 World University Ranking

201-250 Asia University Ranking

QS : 331 World University Ranking

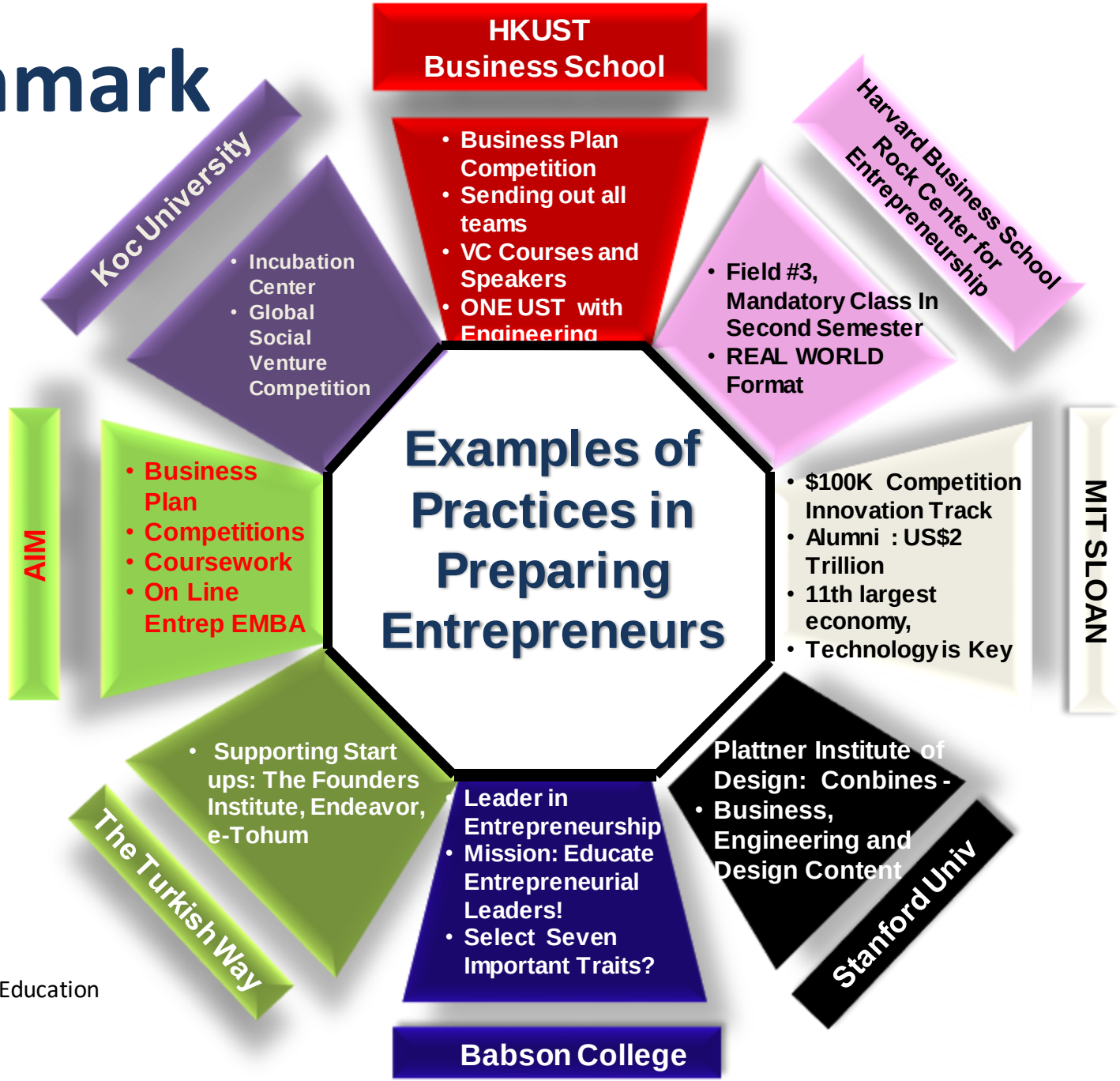
51-100: Art & Design

Excellence in Innovation - Unit kelengkapan ITB Entrepreneurial University



- Benchmark
- Program Studi Kewirausahaan
- MK Pilihan Manajemen Inovasi dan Kewirausahaan
- Kelompok Keahlian
- Pusat Penelitian dan Pusat
- Pusat Unggulan Iptek
- Lembaga Pengembangan Inovasi dan Kewirausahaan
- Innovation Park

Benchmark



Sumber: Steven J. DeKrey, Ph.D.
International Congress on Trends in Higher Education
"Entrepreneurship in Education
President, Asian Institute of Management
June 6, 2014

ITB Entrepreneurial University

1. Research Groups : 102 KK
   - Cluster Sains
   - Cluster Engineering
   - Cluster Seni dan Humaniora
   - Cluster Bisnis dan Manajemen
2. Seven Research Centers & 22 Centers
3. Four (National) Leading Center for Science and Technology in ITB (2016) Supported by Ministry of Research, Technology and Higher Education ("Pusat Unggulan Iptek - PUI")

LPIK - ITB Innovation Park Activity

A. Business Incubator as a Co-Creation

Until 2017 already has 70 **selected startup tenants,** located at Co-Working space LPIK ITB,

15% of it already **have commercialization partner**

B. Consulting and patent information centers, market study

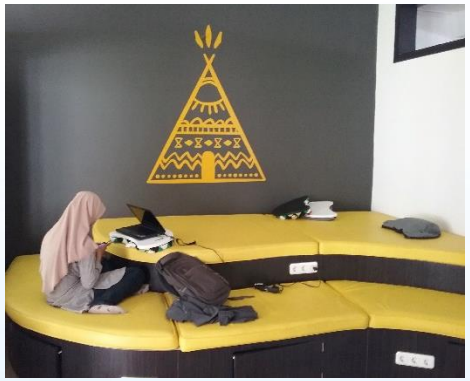
C. Training and workshop to develop Entrepreneurship

D. Supporting :

Exhibition, seminar and conference,
Business and management consultation,
Socialization and discussion,
Festival/conference


CO-WORKING SPACE LPIK
KERJASAMA
LPiK ITB
lintasarta
BANDUNG , APRIL 2016

Coworking space



Idea Hunting Room

Brainstorming Room

Exhibition Room

Working & Coffee Room

Meeting & Multimedia Room

FOUR CLUSTER OF INDUSTRIAL COOPERATION

ENERGY AND ENVIRONMENT

TRANSPORTATION AND INFRASTRUCTURE

FOOD, HEALTH AND LIFE-SCIENCE

ICT, CREATIVE INDUSTRY AND SERVICE

Radar Cuaca

ITB berkolaborasi dengan BMKG dan PT Inti untuk menjalankan penelitian yang bertujuan untuk membangun industri radar nasional yang independen.

Para peneliti berasal dari berbagai fakultas di ITB, di antaranya adalah:

Dr. Ir. M Ridwan Effendi, Dr.Ir. Nana Rachmana M.Eng, Dr. Ir. Ian Yosef, Prof. Dr. Andriyan Bayu Suksmono, Dr. Ir. Irma Zakia, Dr. Eng. Yosi Agustina Hidayat, ST., MT. , Riza Satria Perdana, ST, MT, Dr. Donny Danudirdjo, ST, MT, Dr. Ir. Tutun Juhana ST, MT, Iskandar, Ir., M.T., Dwita Astari Pujiartati, ST.MT, Rulli Tri Cahyono

Faktor Budaya

Venture Capital / Business Angels Needed

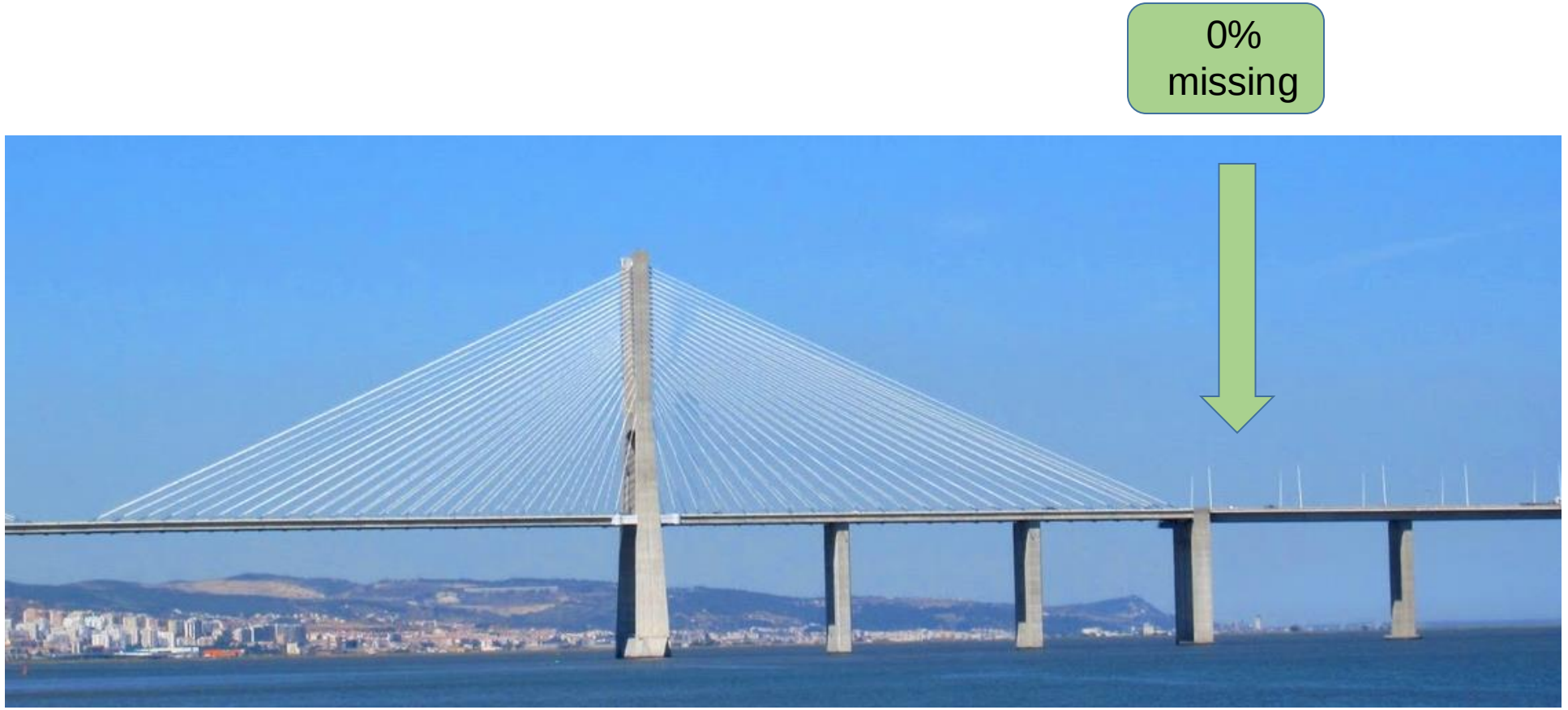
99% built bridge

1% missing

Sumber: Why universities should create Business Angels groups based on their alumni groups ? Istanbul, 6th March 2014

Paulo Andrez
President Emeritus EBAN (European Trade Association for Business Angels)

University Business Angels groups: the 1% piece that fixes the innovation “bridge”



Sumber: Why universities should create Business Angels groups based on their alumni groups ? Istanbul, 6th March 2014

Paulo Andrez

President Emeritus EBAN (European Trade Association for Business Angels)

Guiding Measurement of Entrepreneurial University

A. OECD FRAMEWORK
B. MIT SKOLTECH INITIATIVE FRAMEWORK

A. OECD FRAMEWORK

A Guiding framework for Entrepreneurial Universities

- Leadership and Governance
- Organisational Capacity, People and Incentives
- Entrepreneurship development in teaching and learning
- Pathways for entrepreneurs
- University – business/external relationships for knowledge exchange
- The Entrepreneurial University as an international institution
- Measuring the impact of the Entrepreneurial University

B. MIT SKOLTECH INITIATIVE FRAMEWORK

Creating university-based entrepreneurial ecosystems: Evidence from emerging world leaders

MIT Skoltech Initiative

Dr. Ruth Graham

Factors that support the development of university E&I capabilities and ecosystem growth:

1. University senior management
2. University departments
3. University-led E&I activity
4. Student-led E&I activity
5. External E&I community

innovations, labelled Component 2 in Figure 13.

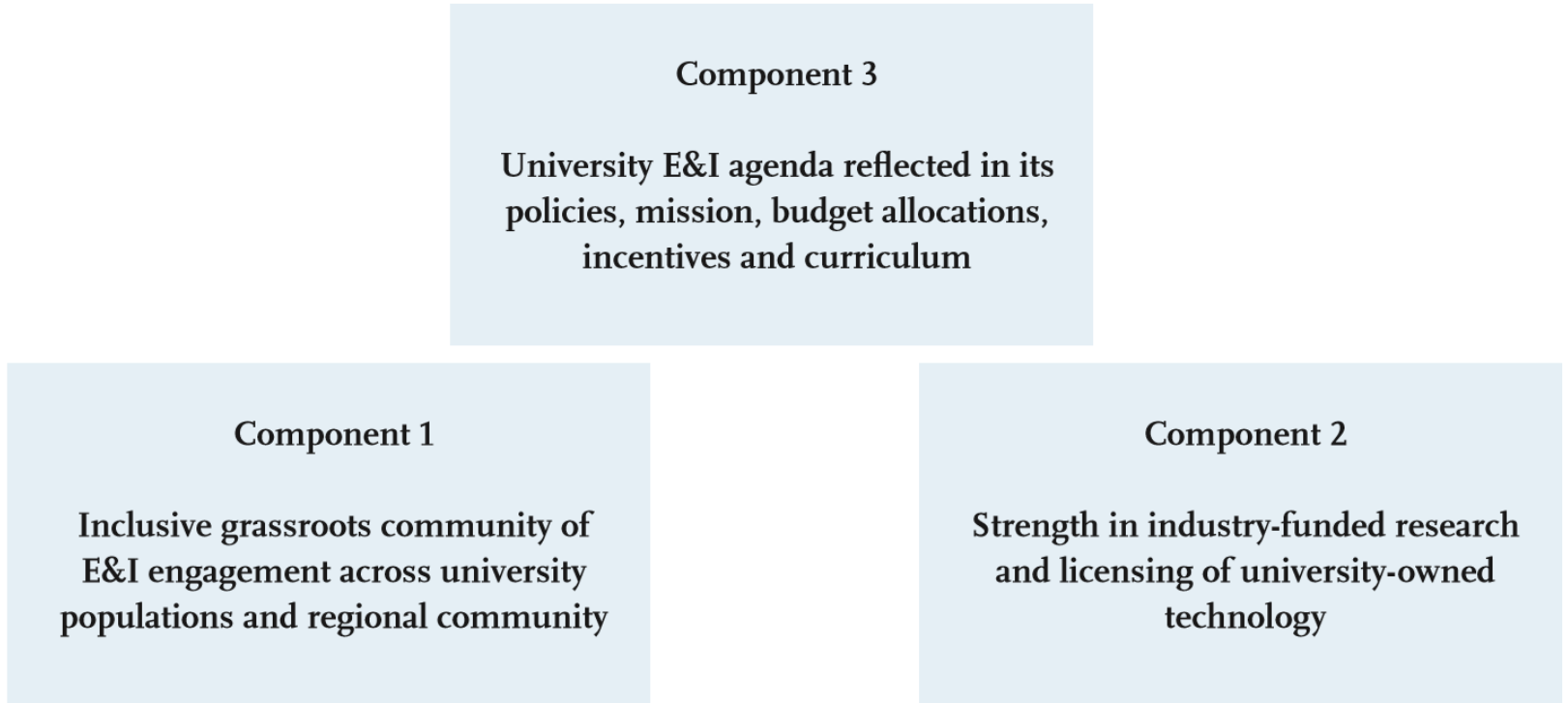


Figure 13. Three critical components in the establishment of an entrepreneurial university.

Entrepreneurial university checklist

(It does not represent an exhaustive list of the components of an effective entrepreneurial university)

1. Leadership and institutional governance
2. Academic cultures and careers
3. University-led E&I activity
4. Student-led and grassroots E&I activity
5. Connectivity with and support for the regional, National and international E&I community

Information to characterise the institutional profile, E&I approach and research commercialisation activity of world class entrepreneurial universities:

1. University ranking
2. Institutional size and budget
3. E&I approach
4. Research commercialisation activity

1. University ranking:

a. The expert ranking achieved for the world's most successful technology innovation ecosystems
b. The expert ranking achieved for highly effective technology innovation ecosystems operating in a challenging environment
c. Position in the Times Higher Education's World University Rankings
d. Position in the QS World University Rankings

2. Institutional size and budget:

a. Annual university revenue (operating revenue, where available) in US Dollars
b. Total university endowment in US Dollars
c. Annual sponsored (or contract) research income in US Dollars
d. Annual industry sponsored research income in US Dollars
e. Total number of university undergraduates (part- plus full-time)
f. Total number of graduate students (part- plus full-time)
g. Total number of academic faculty (part- plus full-time)

3. E&I approach:

a. Does the university offer centres actively promoting E&I to university staff and students?
b. Does the university offer E&I courses to students across campus (not just those within the business school or equivalent)?
c. Are there university-wide E&I competitions (i.e. open to ALL university faculty and/or students)?
d. Are there active E&I student clubs and societies available to students across campus?
e. Does the university offer seed funding?
f. Does the university offer proof of concept funding?

3. E&I approach:

g. Does the university offer an accelerator or incubator?

h. Does the university engage in active partnerships to support the development of other university-based entrepreneurial ecosystems around the world?

i. Who owns the IP for government-funded research?

j. Who owns the IP for industry-funded research?

k. Are bodies external to the university providing active support to drive the development of the ecosystem (such as angel groups, alumni networks etc.)?

4. Research commercialisation activity:

a. Annual IP disclosures
b. Annual patents filed (all fillings, all jurisdictions)
c. Annual patents issued (all jurisdictions)
d. Number of licences per year
e. Number of licences to spin outs per year
f. Gross licence income received per year
g. IP expenses per year: expenditure on patents

Top 10 entrepreneurial universities:

- Aalto University (Finland)
- University of Auckland (New Zealand)
- University of Cambridge (UK)
- Imperial College London (UK)
- University of Michigan (US)
- MIT (US)
- University of Oxford (UK)
- Stanford University (US)
- Technion (Israel)
- UC San Diego (US)

Terima Kasih

Pengembangan Inovasi & Technopreneurships

Tujuan Strategis

- Pengembangan inovasi dan kewirausahaan
- Pengembangan inkubasi bisnis
- Kerjasama industri
- Manajemen kekayaan intelektual
- Pengembangan Innovation Park

Inkubasi Bisnis

- Pengembangan start-ups
- Co-working space
- Sosialisasi dan promosi inovasi ITB
- Perencanaan bisnis
- Kemitraan usaha
- Kompetisi bisnis
- Konsultasi inovasi dan bisnis
- Kerjasama riset inovasi
- Manajemen riset inovasi

Manajemen Kekayaan Intelektual

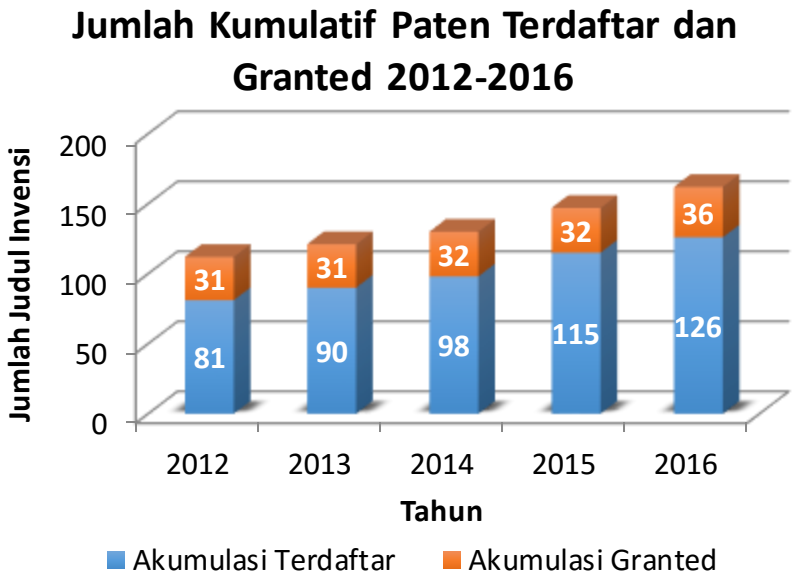
- Pendataan inovasi ITB
- Sosialisasi dan konsultasi kekayaan intelektual
- Training dan penelusuran informasi kekayaan intelektual/paten
- Pendaftaran kekayaan intelektual
- Lisensi Kekayaan intelektual & teknologi ITB
- Pengembangan ketentuan dan aturan kekayaan intelektual ITB
- Konsultasi hukum bidang kewirausahaan, bisnis dan teknologi

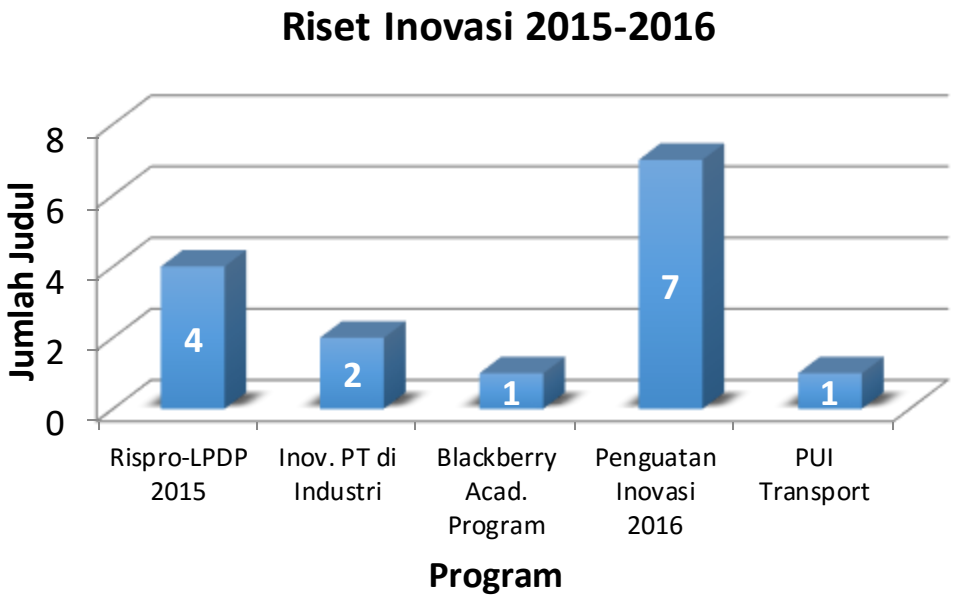
Pengembangan Kewirausahaan

- Pelatihan kewirausahaan dan jejaring
- Seminar, workshops dan pameran kewirausahaan
- Program kemitraan dengan UKM, industri, dan pemerintah
- Business coaching and consultancy

Innovation Park

- ITB Innovation Park I (Kampus Ganesha, Co-working space)
- ITB Innovation Park II (Bandung Teknopolis, Gede Bage)
- NARC (New Academic Research Center, Cirebon)


Jumlah Kumulatif Paten Terdaftar dan Granted 2012-2016
Jumlah Judul Invensi
200
150
100
50
0
31
31
32
32
36
81
90
98
115
126
2012
2013
2014
2015
2016
Tahun
Akumulasi Terdaftar
Akumulasi Granted


Riset Inovasi 2015-2016
Jumlah Judul
8
6
4
2
0
4
2
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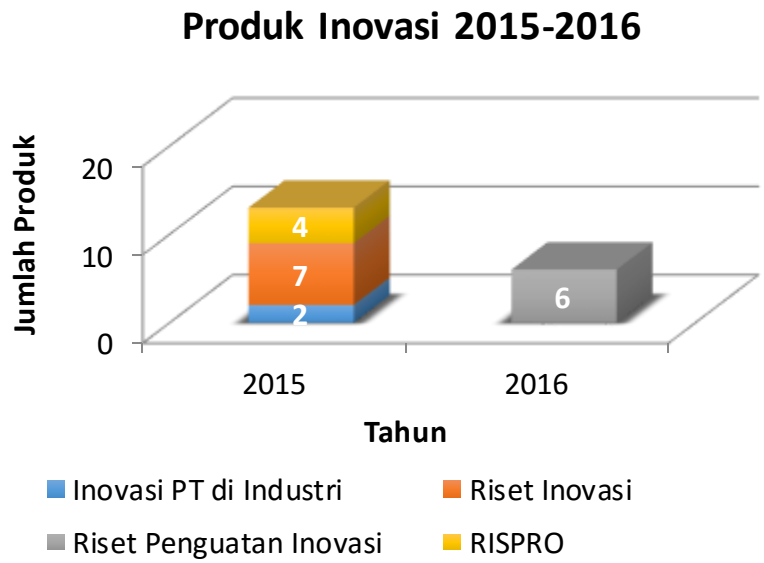
7
1
Rispro-LPDP 2015
Inov. PT di Industri
Blackberry Acad. Program
Penguatan Inovasi 2016
PUI Transport
Program


Produk Inovasi 2015-2016
Jumlah Produk
20
10
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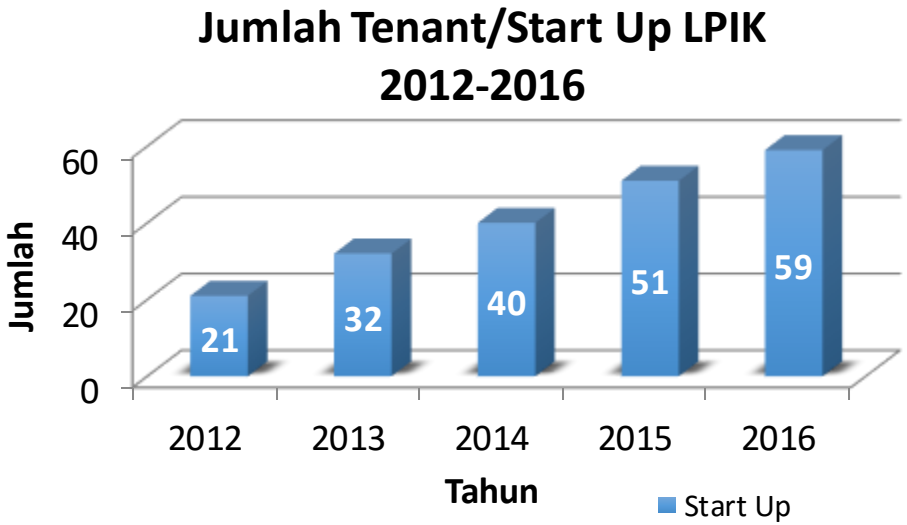
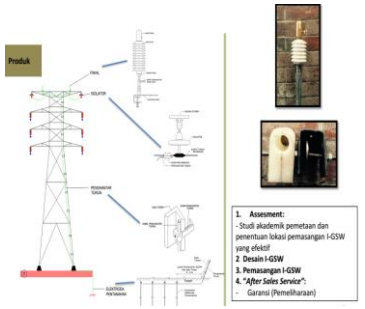
4
7
2
6
2015
2016
Tahun
Inovasi PT di Industri
Riset Inovasi
Riset Penguatan Inovasi
RISPRO


Jumlah Tenant/Start Up LPIK 2012-2016
Jumlah
60
40
20
0
21
32
40
51
59
2012
2013
2014
2015
2016
Tahun
Start Up

Start-up (contoh)

INSITEK

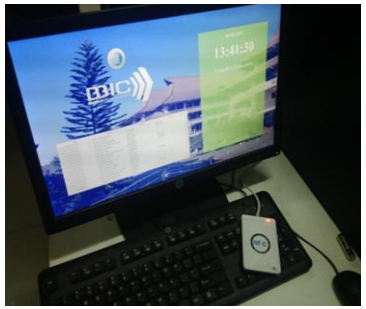
KINETIK



TESLA DAYA ELEKTRIKA

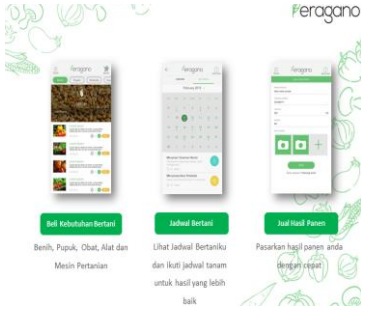
T-FILES

PROTEK SOLUTION



LAYANAN NIAGA CERDAS

SOROT



ERAGANO

Pusat Unggulan IPTEKS (PUI)

- PUI Broadband Wireless Access
- PUI Nanosains & Nanoteknologi
- PUI Teknologi Transportasi Berkelanjutan
- PUI Teknologi Pertahanan & Keamanan

TECHNOPRENEURSHIP ORIENTATION PROGRAM (TOP)

TOP 1

Level 1: Before Product-Market Fit

1. Memahami Pasar dan potensi pasar
2. Mampu membuat **Bisnis model**

TOP 2

Level 2: After Product-Market Fit

1. Dasar-dasar Manajemen Start up
2. Mampu membuat **Business Plan**

TOP 3 (PTC)

Level 3: Bisnis Inisiasi

Prototype development
Inisiasi Bisnis

Inkubasi Bisnis

CLUSTER KERMA INDUSTRI

ENERGY AND ENVIRONMENT

TRANSPORTATION AND INFRASTRUCTURE

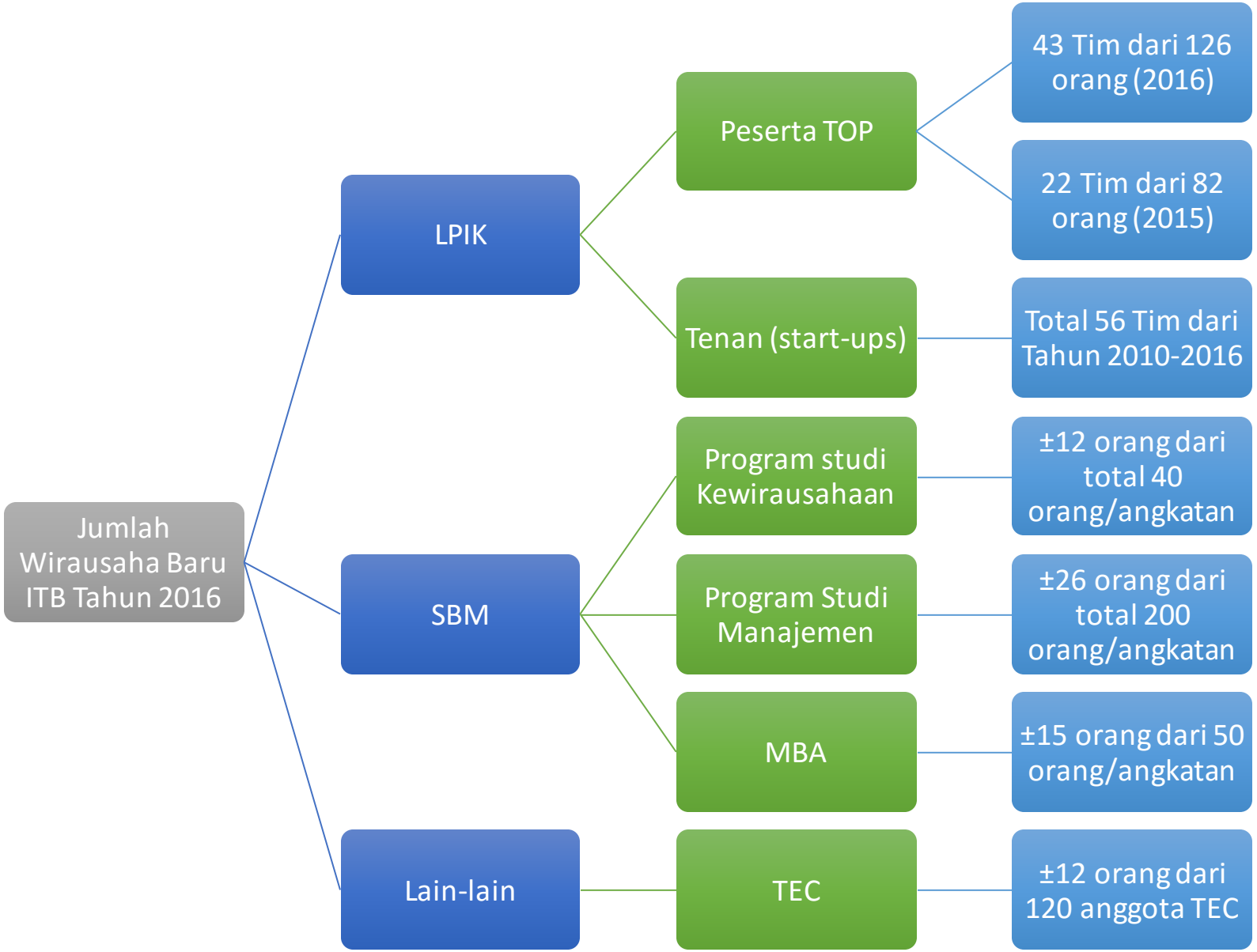
- Pengelolaan Pusat Ungulan Iptek (PUI-STT) 2016 sd 2018 yang didanai oleh Kemenristekdikti untuk pengembangan produk, mobil listrtik, pesawat latih dan kereta api
- Kerjasama kendaraan develiry untuk PT. POS Indonesia

FOOD, HEALTH AND LIFE-SCIENCE

- Kerjasama ITB dan PT. Biofarma untuk Overekspresi HbsAg pada *Pichia Pastoris* melalui peningkatan jumlah kaset
- Kerjasama ITB dan PT. Biofarma (Persero) untuk Pengkajian dan Penerapan Ilmu Pengetahuan dan Teknologi dalam Bidang Pengembangan dan Produksi Vaksin Hepatitis B Berbasis Protein Rekombinan
- Kerjasama ITB dan PT.Phapros dalam mengembangkan pendidikan, penelitian, dan pengabdian kepada masyarakat

ICT, CREATIVE INDUSTRY AND SERVICE

- PCB Design Center dan Joint Research and Innovation on Cyber Security dengan Soon Chun Hyang University Korea
- Program training ICT dengan Gyeonggy Prov dan Ajou University Korea


Jumlah Wirausaha Baru ITB Tahun 2016
LPIK
Peserta TOP
43 Tim dari 126 orang (2016)
22 Tim dari 82 orang (2015)
Tenan (start-ups)
Total 56 Tim dari Tahun 2010-2016
SBM
Program studi Kewirausahaan
±12 orang dari total 40 orang/angkatan
Program Studi Manajemen
±26 orang dari total 200 orang/angkatan
MBA
±15 orang dari 50 orang/angkatan
Lain-lain
TEC
±12 orang dari 120 anggota TEC

Pendanaan

- Kemenristekdikti
  - Riset Penguatan Inovasi
  - Pengembangan Start-ups
- LPDP
  - Riset Inovasi Produksi
- Industri mitra (Lintas Arta, PT Pos, dll)
- Bappenas
- Kemenperin
- Newton Fund

Pengembangan Kedepan

- Peningkatan produk inovasi (TRL>=6)
- Pengembangan ekosistem inovasi melalui cluster inovasi(Innovation Parks)
- Peningkatan jumlah start-ups & spin-offs
- Pemberdayaan PT Rekayasa Inovasi ITB utk mewadahi start-ups
- Investor club (angel investor)
- Peningkatan jumlah paten terdaftar & granted
- Penguatan kerma industri
- Pengembangan Pusat Unggulan IPTEKS
- Penguatan jejaring (NEN, Asean Start-up Network, Silicon Valley, …)
- Pengembangan spirit entrepreneurships melalui kurikulum

1 - Leadership and Governance

- Entrepreneurship is a major part of the university strategy.
- There is commitment at a high level to implementing the entrepreneurial strategy.
- The university has a model for coordinating and integrating entrepreneurial activities at all levels across the university
- The faculties and units have autonomy to act.
- The university is a driving force for entrepreneurship development in the wider regional, social and community environment.

2 - Organisational Capacity, People and Incentives

- The university has a sustainable financial strategy in place to support entrepreneurial development.
- The university's entrepreneurial objectives are supported by a wide variety of funding sources/investment, including investment by external stakeholders.
- There are mechanisms in place for breaking down traditional boundaries and fostering new relationships - bringing internal stakeholders together (staff and students) and building synergies between them.
- The university is open to recruiting and engaging with qualified individuals with entrepreneurial attitudes, behaviours and experience.

2 - Organisational Capacity, People and Incentives

- The university invests in staff development to support its entrepreneurial agenda.
- There are clear incentives and rewards for staff who actively support the university's entrepreneurial agenda.
- The university gives status and recognition to other stakeholders who contribute to the university's entrepreneurial agenda.

3 - Entrepreneurship development in teaching and learning

- The university is structured in such a way that it stimulates and supports the development of entrepreneurial mindsets and skills
- Entrepreneurial training for staff takes place in all parts of the university.
- Staff take an entrepreneurial approach to teaching in all departments, promoting diversity and innovation in teaching and learning
- Entrepreneurial behaviour is supported throughout the university experience; from creating awareness and stimulating ideas through to development and implementation (pre-business and business start-up).

3 - Entrepreneurship development in teaching and learning

- The university validates entrepreneurship learning outcomes.
- Engagement of external stakeholders is a key component of teaching and learning development in an Entrepreneurial University
- Research results are integrated into entrepreneurship education and training.

4 - Pathways for entrepreneurs

- The university raises awareness of the value/importance of developing entrepreneurial abilities amongst staff and students.
- The university actively encourages individuals to become entrepreneurial
- The university provides opportunities to experience entrepreneurship
- The university provides support for individuals and groups to move from entrepreneurial ideas to action.

4 - Pathways for entrepreneurs

- Mentoring by academic and industry personnel is available.
- The university facilitates access to private financing for its potential entrepreneurs.
- The university provides access to business incubation facilities.

5 - University – business/external relationships for knowledge exchange

- The university is committed to knowledge exchange with industry, society and the public sector.
- The university demonstrates active involvement in partnerships and relationships with a wide range of stakeholders.
- The university has strong links with incubators, science parks and other external initiatives, creating opportunities for dynamic knowledge exchange
- The university provides opportunities for staff and students to take part in entrepreneurial activities with business/the external environment.

5 - University – business/external relationships for knowledge exchange

- The university specifically supports staff and student mobility between academia and the external environment.
- The university links research, education and industry (wider community) activities together to affect the whole knowledge ecosystem.

6 - The Entrepreneurial University as an international institution

- Internationalisation is a key part of the university's entrepreneurial strategy.
- The university explicitly supports the international mobility of its staff and students (including PhD students).
- The university seeks and attracts international and entrepreneurial staff (including teaching, research and PhDs)
- The university demonstrates internationalisation in its approach to teaching
- The university, its departments and faculties actively participate in international networks.

7 - Measuring the impact of the Entrepreneurial University

- The university assesses the impact of its strategy on entrepreneurship across the institution
- The university assesses the level of engagement in entrepreneurial teaching and learning across the institution.
- The university assesses the impact of entrepreneurial teaching and learning
- The university regularly assesses the impact of entrepreneurship teaching and learning
- The university carries out regular monitoring and evaluation of the universities' knowledge exchange activities.
- The university carries out regular monitoring and evaluation of the impact of start-up support

The Guiding Framework for Entrepreneurial University

1. **University senior management:** Strong university leadership and governance, actively promoting a clear and prominent E&I agenda that is responsive to the regional and national entrepreneurial environment.

2. **University departments:** An academic culture that acknowledges, supports and rewards E&I enquiry within a cross-disciplinary context, helping to nurture influential disciplinary-based role models, curricular and cocurricular activities, and champions for institutional change.

3. **University-led E&I activity:** Distributed responsibility for E&I delivery across multiple university agencies, with a range of support services and participation routes for both students and staff throughout each stage of their personal entrepreneurial growth.

4. **Student-led E&I activity:** An empowered, cohesive, inventive, bold and well-connected student-led entrepreneurial community, benefitting from sustained low-level funding, seasoned entrepreneurial mentors and direct connections to university senior management.

5. **External E&I community:** Robust relationships built on trust and mutual benefit between the university and the regional/national E&I community, with a platform for these individuals to play a visible and influential role in university life.

1. Leadership and institutional governance

- Clear, well-articulated and unified university E&I strategy, which brings together priorities, activities and outputs related to both university-owned IP and non university-owned IP
- Visibility of E&I in the university mission statement, with the vision vocally and publicly endorsed by senior university management and governing body of the institution
- Clear performance metrics for university E&I that incorporate institutional E&I culture, connectivity and engagement as well as commercialisation and industry-funded research output
- An approach that is responsive to changing institutional conditions and opportunities for E&I, based on a knowledge of the external E&I environment, on-going university E&I impact assessments and an awareness of international research and progress in the field
- Provision of flexible, responsive and on-going funding streams to support E&I activities, resourced from internal budgets and/or brokered from agencies external to the university

2. Academic cultures and careers

- Visibility of E&I in departmental and faculty activities, workload models, role allocations and performance targets

- Recognition of E&I impact, experience and connectivity in the recruitment and promotion of faculty, researchers and teachers; a fact publicly promoted and endorsed by senior academic staff

- Visibility of faculty role models and champions in E&I, celebrating both their successes and failures

- Mechanisms to promote research collaboration, enquiry driven by end-user need and multi-disciplinary E&I across and beyond the university

3. University-led E&I activity

- Distributed responsibility for delivery of the university E&I agenda, across several autonomous agencies, led by individuals with networks and experience within the E&I community
- Range of university-led E&I activities, which can be accessed by staff and students via multiple routes, supporting each stage of an individual's entrepreneurial development, from early awareness-raising to accessing financing for commercialization
- Inclusion of E&I in the curriculum, exposing students to entrepreneurial ideas, projects, role models and opportunities from within their field of study
- Formal E&I training for university faculty and researchers as part of their continuing professional development
- Dedicated mentorship for student and staff startups, with particular focus on skill-building and the creation of well-balanced startup teams with insight into market need and access

4. Student-led and grassroots E&I activity

Empowered, cohesive and bold student-led entrepreneurship activity that is:

- well-connected to and working in partnership with the regional E&I community, acting as a conduit between this community and the university, where necessary
- informed and well-connected to the national/international student entrepreneurship community
- autonomous in its direction and focus
- supported by a highly-supportive point of contact within university senior management
- led by students with personal experience of and networks in entrepreneurship
- fresh and innovative in its thinking, supporting renewal and responsive to changing regional conditions, institutional environment and student needs

5. Connectivity with and support for the regional, National and international E&I community

- Partnerships based on trust and mutual benefit with government, industry, alumni entrepreneurs and the regional/national E&I community, with a common understanding of the university's regional
- E&I role Connectivity with the international academic E&I community, with strategic alliances, where appropriate, with established internationally-leading E&I universities
- Range of mechanisms for members of the regional/national E&I community to support university-based E&I talent and ideas, allowing these individuals to play a visible and influential role in university life
- Range of mechanisms – both within and beyond disciplinary departments – by which students, staff and alumni can access, network and collaborate with the regional, national and international E&I community