MEMBANGUN SMART CAMPUS: UNIVERSITAS MASA DEPAN

Marsudi Wahyu Kisworo
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+62811-855-885

Pembicara

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- S1 Teknik Elektro (Komputer), Institut Teknologi Bandung, lulus 1983
- S2 Ilmu Komputer, Curtin University, Australia, lulus 1990
- S3 Ilmu Komputer, Curtin University, Australia, lulus 1992
- Komisaris Independen, PT (Perrsero) Telekomunikasi Indonesia Tbk
- Faculty Member, Universitas Bina Darma dan Universitas Prasetiya Mulya
- Anggota Badan Pertimbangan Pemasyarakatan KemenkumHAM RI
- Tenaga Ahli Pertahanan Cyber Kemhan RI
- Senior Advisor, CitiAsia Inc and Coach Gerakan Menuju 100 Smart city Kominfo
- Trainer bersertifikat dalam bidang arsitektur enterprise, IT security, IT governance, leadesrships, public speaking, GCG, manajemen risiko), dll
- Rektor di beberapa kampus sejak tahun 2000, Perbanas Institute 2010 – 2018
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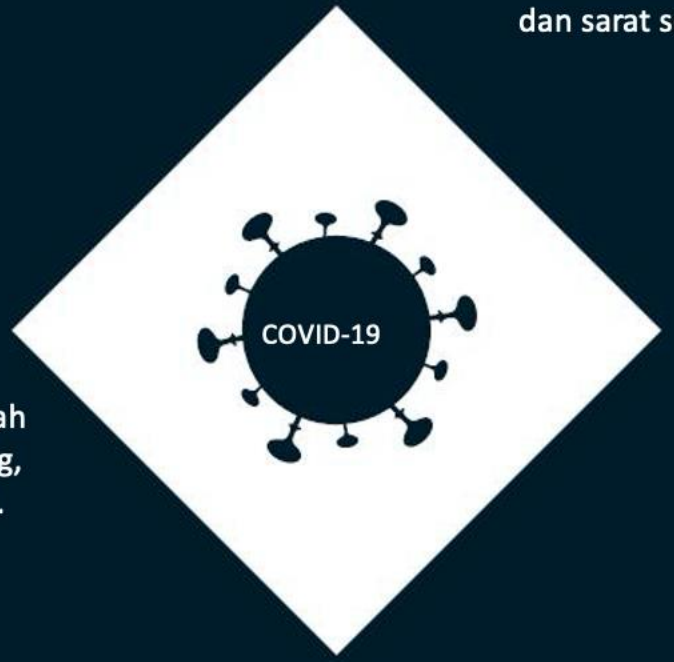
- HP : 0811-855885

THE 4 CONSUMER MEGASHIFTS
In Time of Covid-`19 Crisis

EMPATHIC SOCIETY
Banyaknya korban nyawa akibat COVID-19 melahirkan masyarakat baru yang penuh empa□, welas asih, dan sarat solidaritas sosial.



STAY @ HOME LIFESTYLE
Gaya hidup baru □nggal di rumah dengan ak□vitas working-living-playing, karena adanya social distancing.

GO VIRTUAL
Dengan adanya COVID-19 konsumen menghindari kontak fisik manusia, mereka baralih menggunakan media virtual/digital.

BOTTOM OF THE PYRAMID
Mengacu ke piramida Maslow, konsumen kini bergeser kebutuhannya dari "puncak piramida" yaitu aktualisasi diri dan esteem ke "dasar piramida" yaitu makan, kesehatan, dan keamanan jiwa-raga.

McKinsey&Company

McKinsey Global Institute

Mobile Internet

- Fastest supercomputer in 1975 costs $5m, with equal performance as an iPhone 4, which costs $400
- 4.3 billion people yet to be connect to the Internet today
- $1.7 trillion worth of GDP related to the Internet

Automation of knowledge work

- 100x increase in computing power from IBM's Deep Blue (1997) to Watson (2011)
- 1.1 billion smartphone users with potential to use automated digital assistance apps
- $9+ trillion global costs of employing knowledge workers, which is 27% of global employment costs

Internet of Things

- 300% increase in connected machine-to-machine devices since 2008
- 1 billion things that could be connected to the Internet across different industries
- $36 trillion operating costs of key affected industries
- mining
- health-care
- manufacturing

Cloud technology

- 18 months to double server performance per dollar
- 2.7 billion Internet users served by 50 million servers worldwide
- $3 trillion spending by enterprises on information technology

Advanced robotics

- 170% growth in sales of industrial robots between 2009 and 2011
- 320 million manufacturing workers may be potentially affected

Autonomous and near-autonomous vehicles

- 300,000+ miles driven by Google's autonomous cars with only 1 accident (which was human-caused)
- $4 trillion in global manufacturing employment costs, which is 19% of global workforce
- 1 billion cars & trucks, 450,000 civilian, military & general aviation aircrafts globally
- $4 trillion automobile industry revenues

Next-generation genomics

- 10 months to double sequencing speed per dollar
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- $3.5 trillion value of global electricity consumption

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The source of information in this Mind Map comes from http://www.mckinsey.com/insights/business_technology/disruptive_technologies

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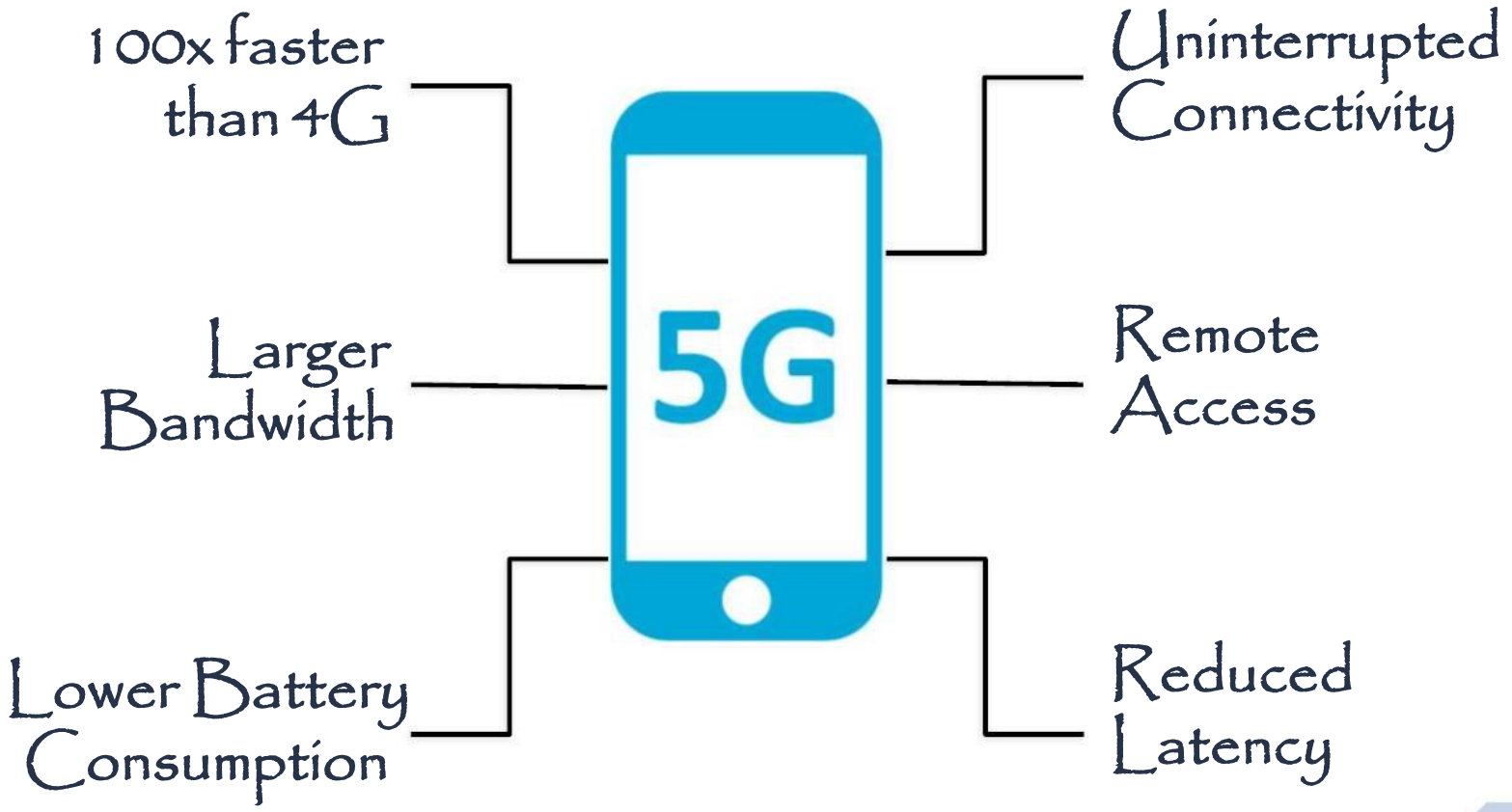
5G in a glance

Quick Fact!

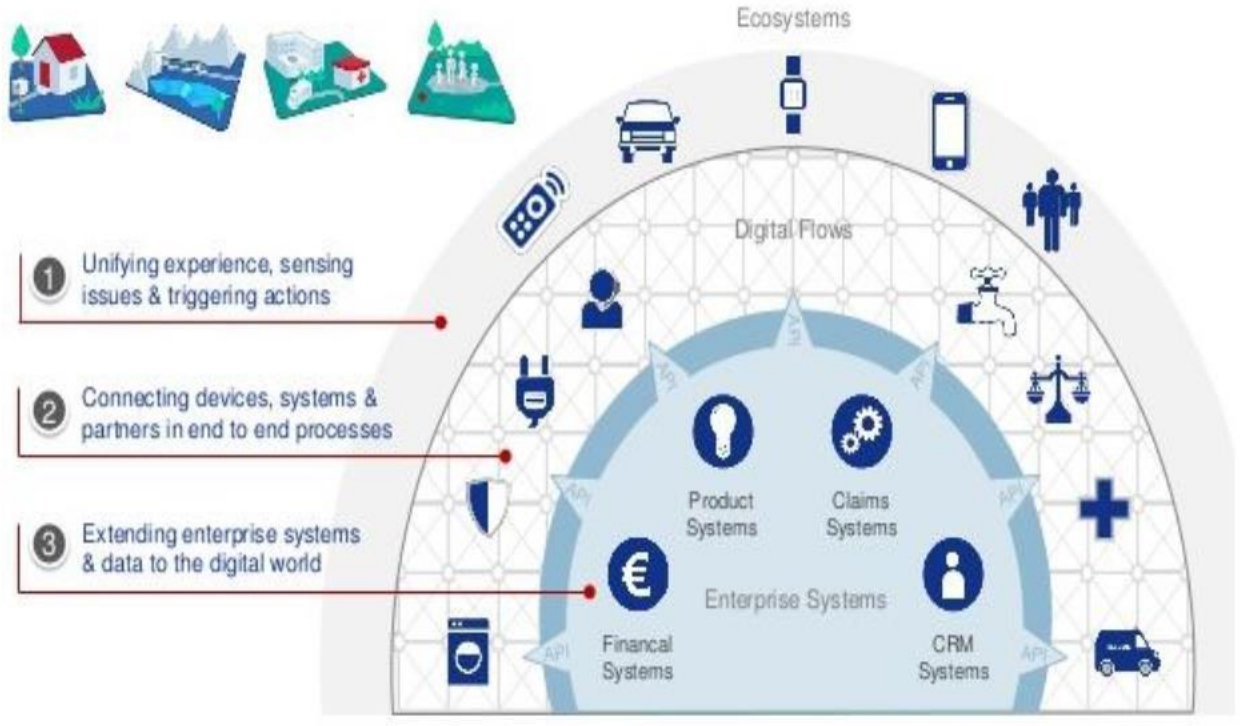
At Mobile World Congress 2017, Samsung showcased its 5G Home Routers, which reached up to 4 (Gbps) according to

Source: PCMag.



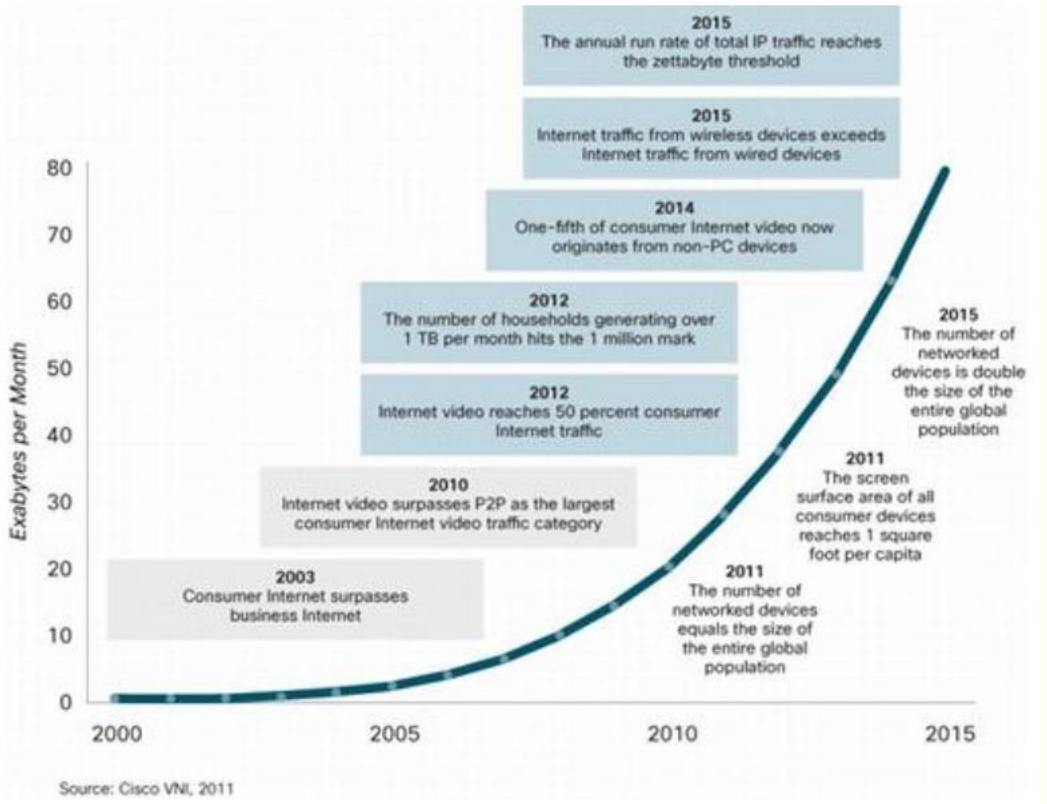
Living in a Hyper-connected World

Hyper-connected World



Source: Allianz

Spread of Network



Source: Cisco VNI, 2011

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"The intellectual talents of highly trained professionals are no more protected from automation than is the driver's left turn"

—Nicholas Carr, The Glass Cage: Automation and Us

Doctors and Lawyers Replaced by Machines

- US Law Firm BakerHostetler used AI Machine called 'Ross' to deal with backcrupcy cases
- MD Anderson Cancer Centre uses IBM AI Watson to diagnose cancer with 96% accuracy

"Human level capability has not turned out to be a special stopping point from an engineering perspective. ...."

Source: Illah Reza Nourbakhsh, Professor of Robotics, Carnegie Mellon, Robot Futures

No Need to Learn Foreign Languages Anymore

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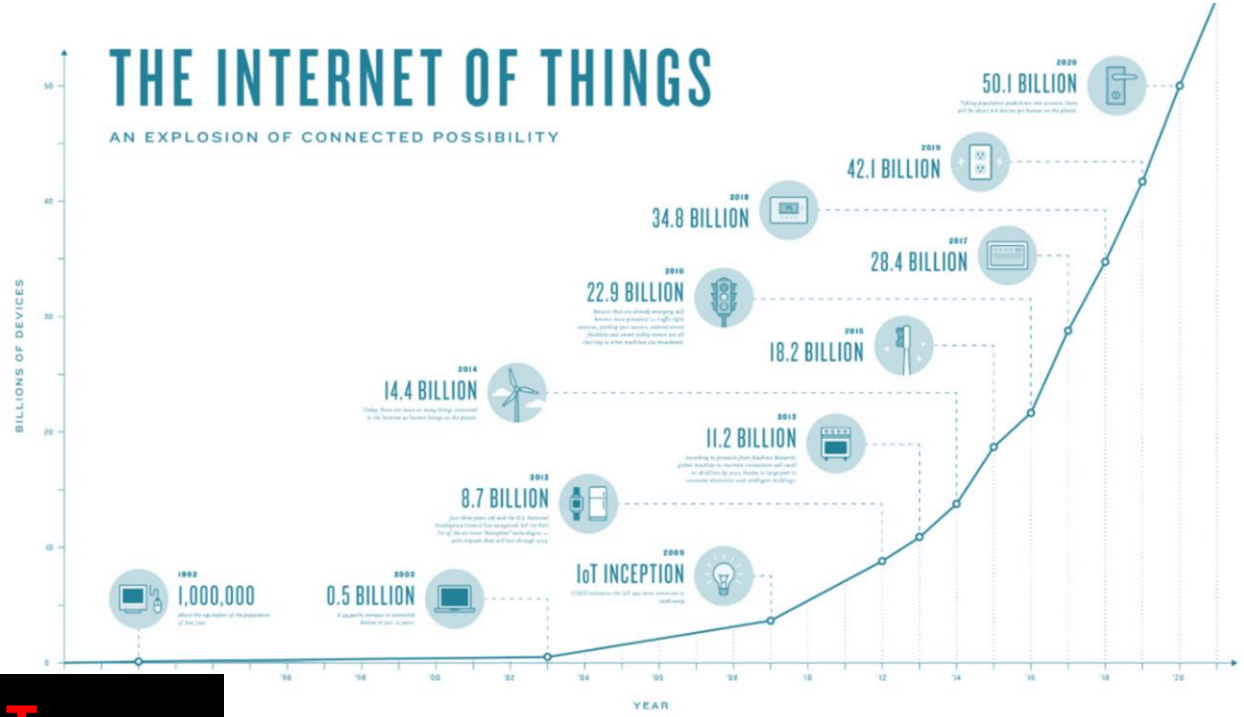
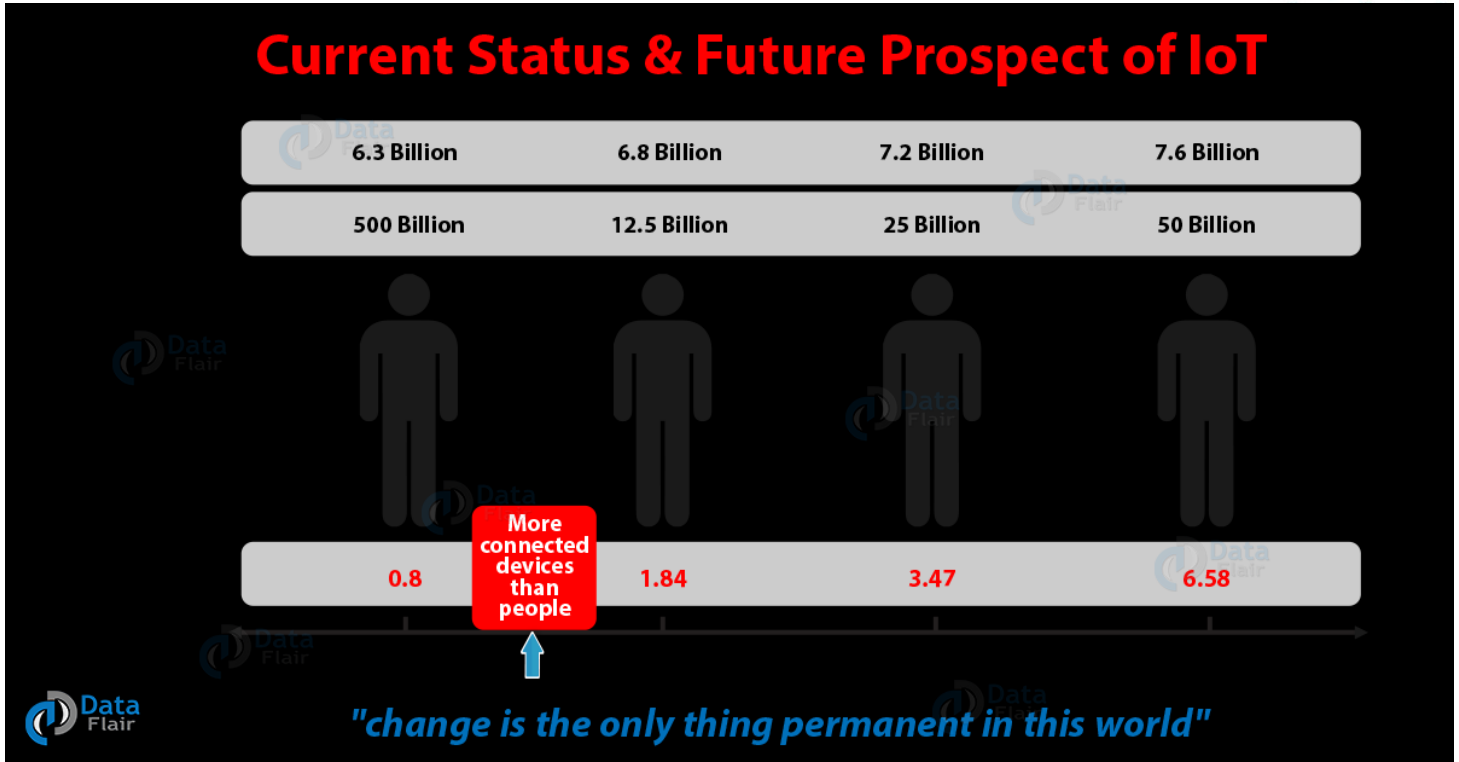
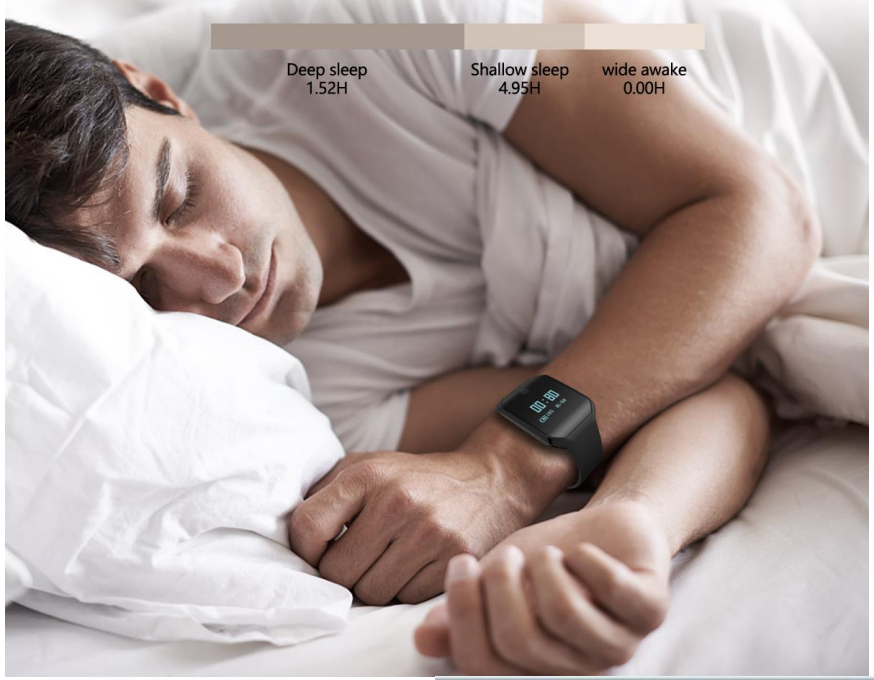
Quick Fact!

According to estimations by the McKinsey Global Institute, the IoT will have a total economic impact of up to $11 trillion by 2025.





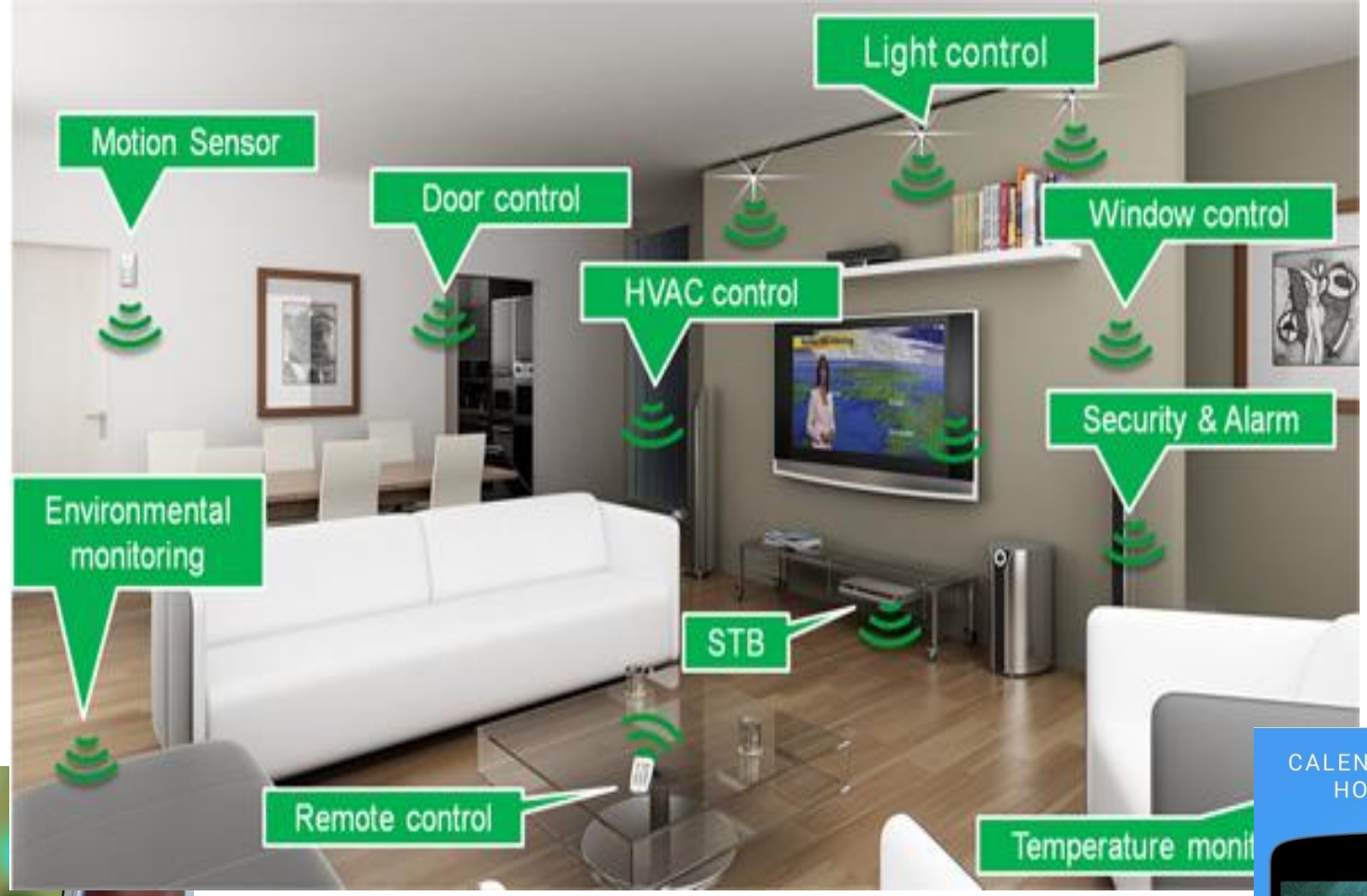
Source: Sttista

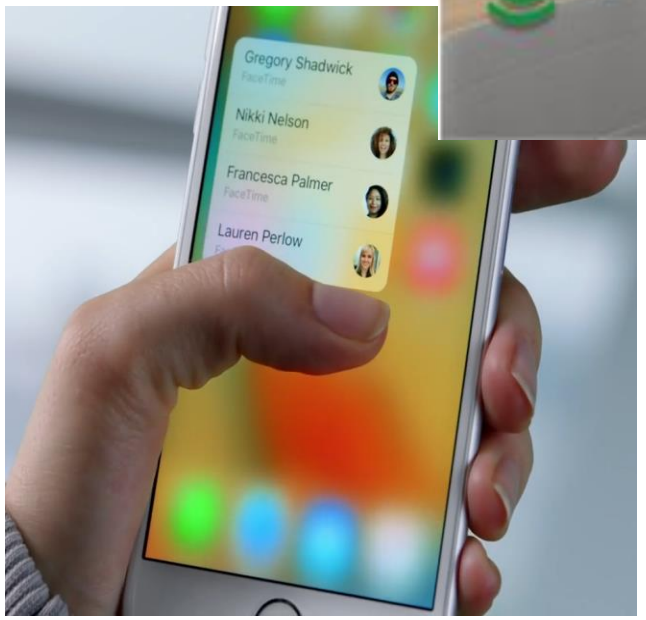

Deep sleep
1.52H
Shallow sleep
4.95H
wide awake
0.00H


Today
Friday, Sep 12
6:48am
7:20pm
Sleeptracker
6:41 Hours
95%
Goal
7:00
Moves
5,054 Steps
101%
Goal
5K
77 bpm Sep 12
207.0 lbs Sep 12
Snore / Apnea / Talk

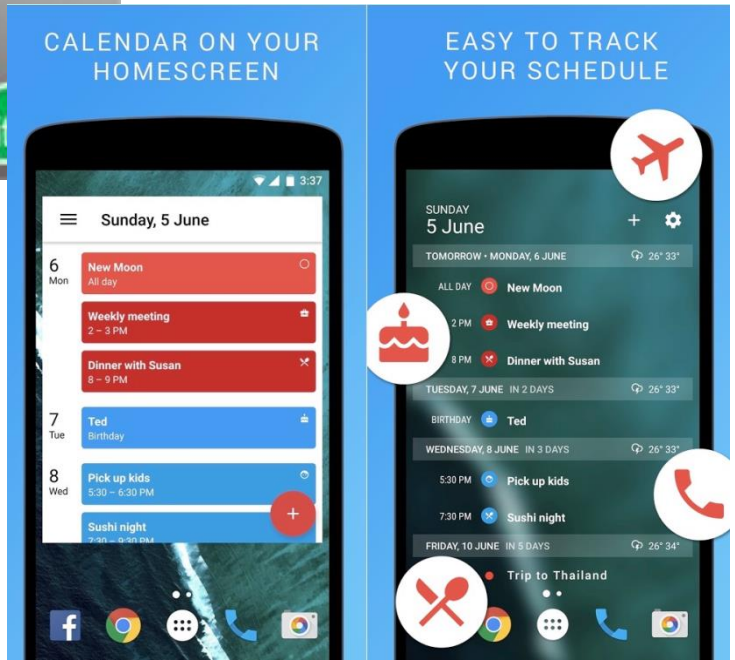

Night of Thursday,
9/11/14
Edit
6:41 Sleep
95%
Wake
Light
Deep
Bed Time: 12:10 am
Rise Time: 7:22 am
Deep Sleep
2:31
Light Sleep
4:10
Time Awake
0:31
Efficiency
93%
1 day


Measure Resting
Heart Rate
Success!
Start
77
bpm
Reset
77 bpm Sep 12


Light control
Motion Sensor
Door control
Window control
HVAC control
Security & Alarm
Environmental monitoring
STB
Remote control
Temperature monit


Gregory Shadwick
FaceTime
Nikki Nelson
FaceTime
Francesca Palmer
FaceTime
Lauren Perlow


11:52
OUTLOOK
Caitlin McGarry
Outlook on Apple Watch
Hi Jared, So is this Outlook app worth using or what? I'm dying to know. Caitlin -- Caitlin McGarry Staff Writer


CALENDAR ON YOUR HOMESCREEN
Sunday, 5 June
6 Mon
New Moon
All day
Weekly meeting
2 – 3 PM
Dinner with Susan
8 – 9 PM
7 Tue
Ted
Birthday
8 Wed
Pick up kids
5:30 – 6:30 PM
Sushi night
EASY TO TRACK YOUR SCHEDULE
SUNDAY
5 June
TOMORROW • MONDAY, 6 JUNE
ALL DAY New Moon
2 PM Weekly meeting
8 PM Dinner with Susan
TUESDAY, 7 JUNE IN 2 DAYS
BIRTHDAY Ted
WEDNESDAY, 8 JUNE IN 3 DAYS
5:30 PM Pick up kids
7:30 PM Sushi night
FRIDAY, 10 JUNE IN 5 DAYS
Trip to Thailand

McKinsey&Company

McKinsey Global Institute

Renewable energy

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- 13 billion tons in annual carbon dioxide emission from electricity generation
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- 65% lower price for solar photovoltaic cell per watt since 2000

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Fog Computing

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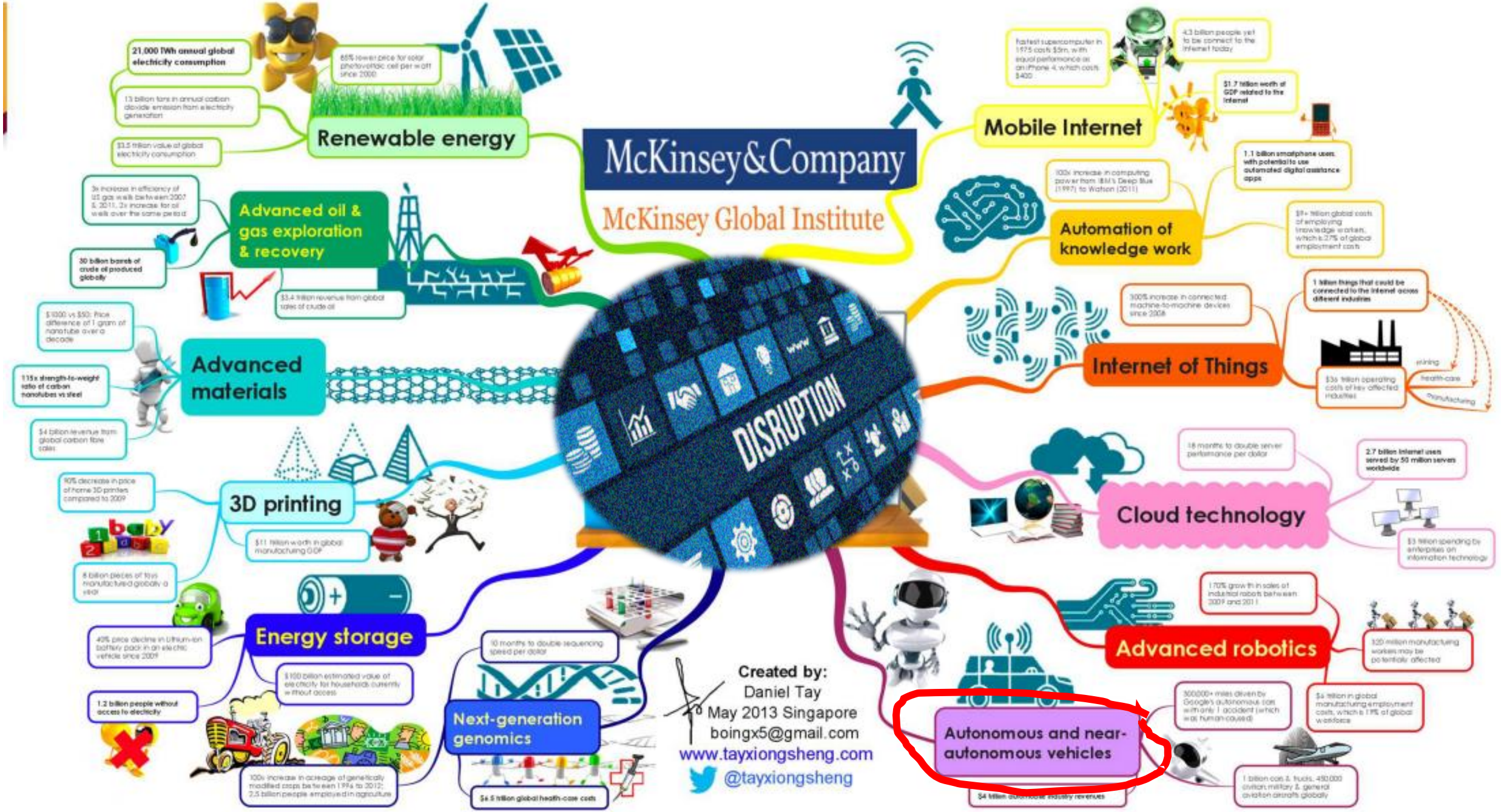
Massive Automation Everywhere

China/Foxconn

1,000,000

robots/next 3 years



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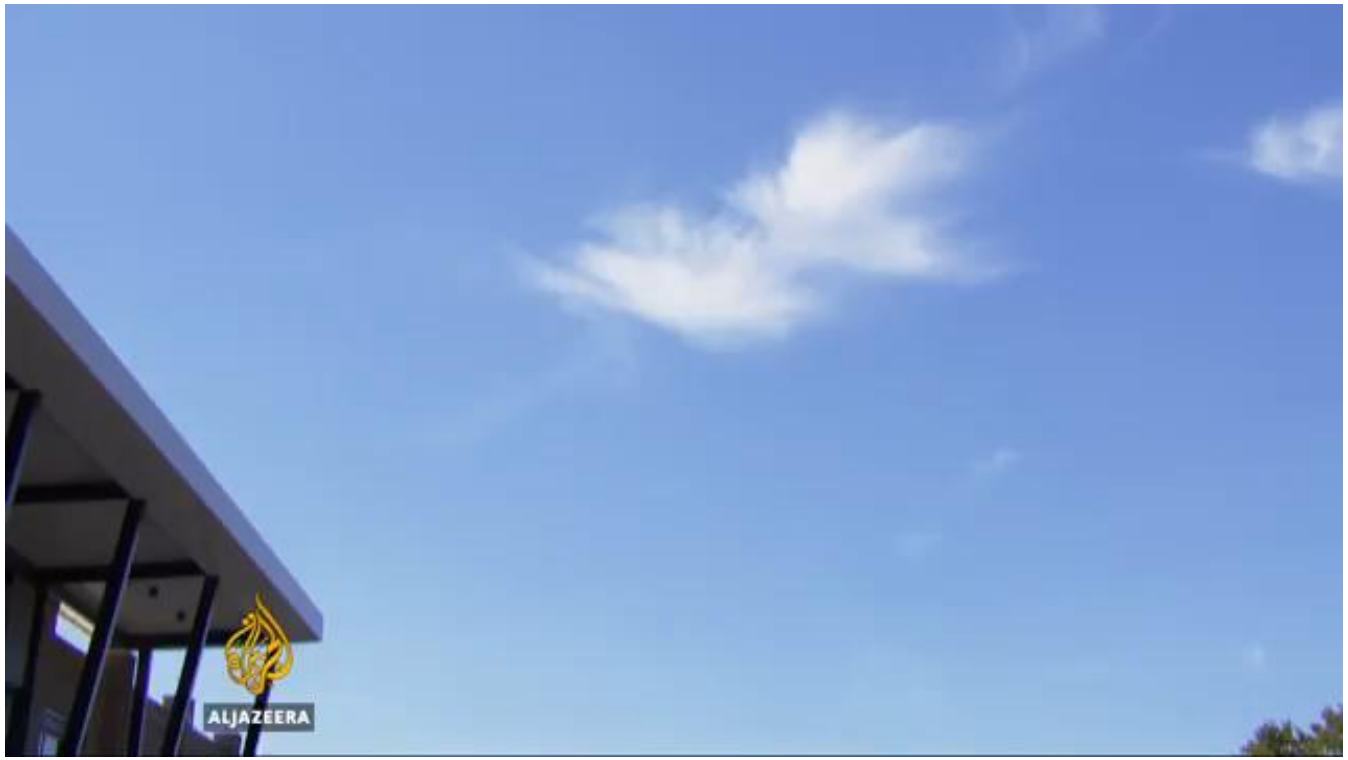
Driverless Taxis, Self Driving Cars

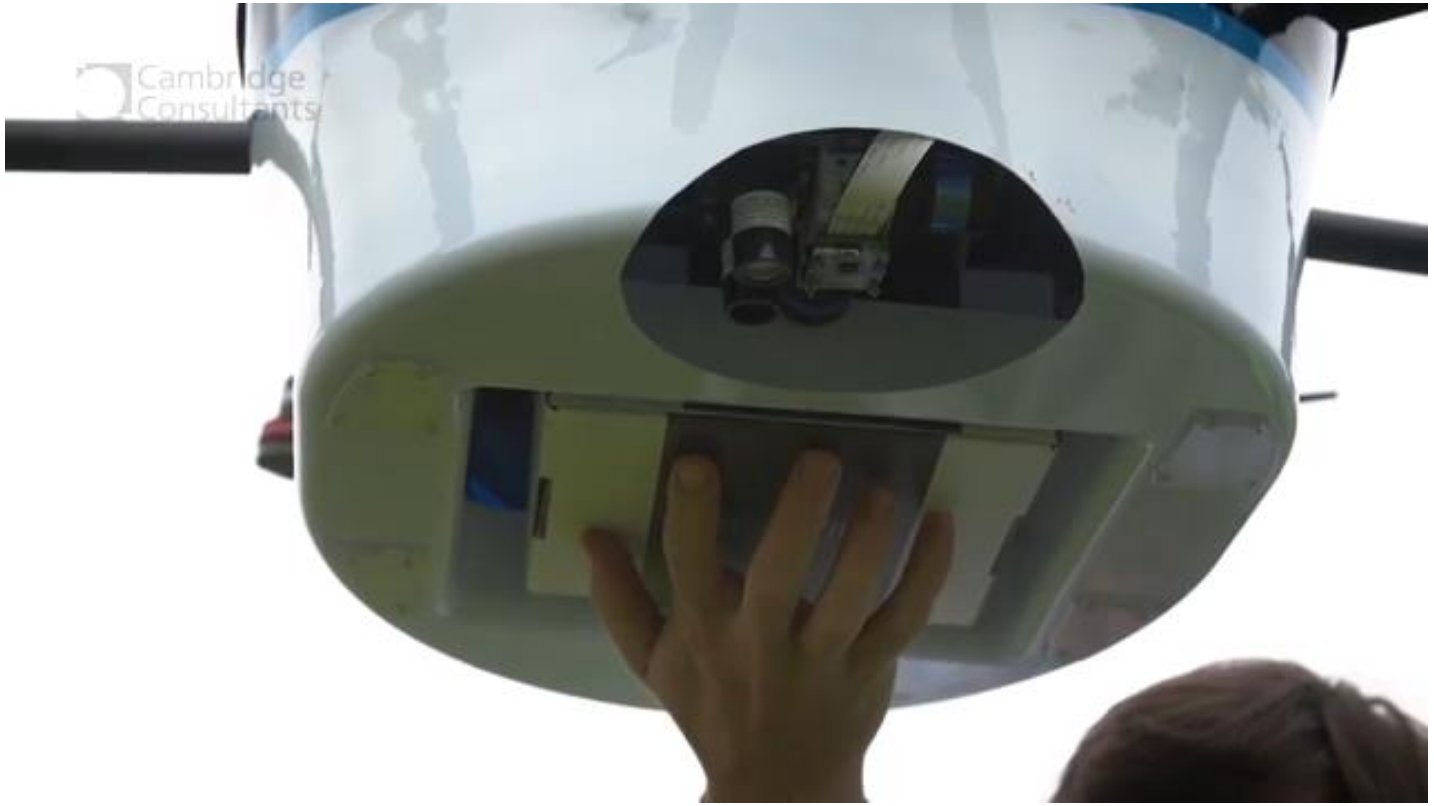


- Uber has tried out driverless taxi service since 2017
- More than ,5 millions taxi drivers and private drivers are expected to loose their jobs

Look, no Driver in this Trucks and Buses

- Daimler has obtain licence to operate driverless trucks in public roads in 2017
- Volvo will commercialize driverless buses soon
- It is predicted that driverless public transports will operates in 2020
- Navya has tested driverless buses in 2017 in 5 bus stations in Lyon

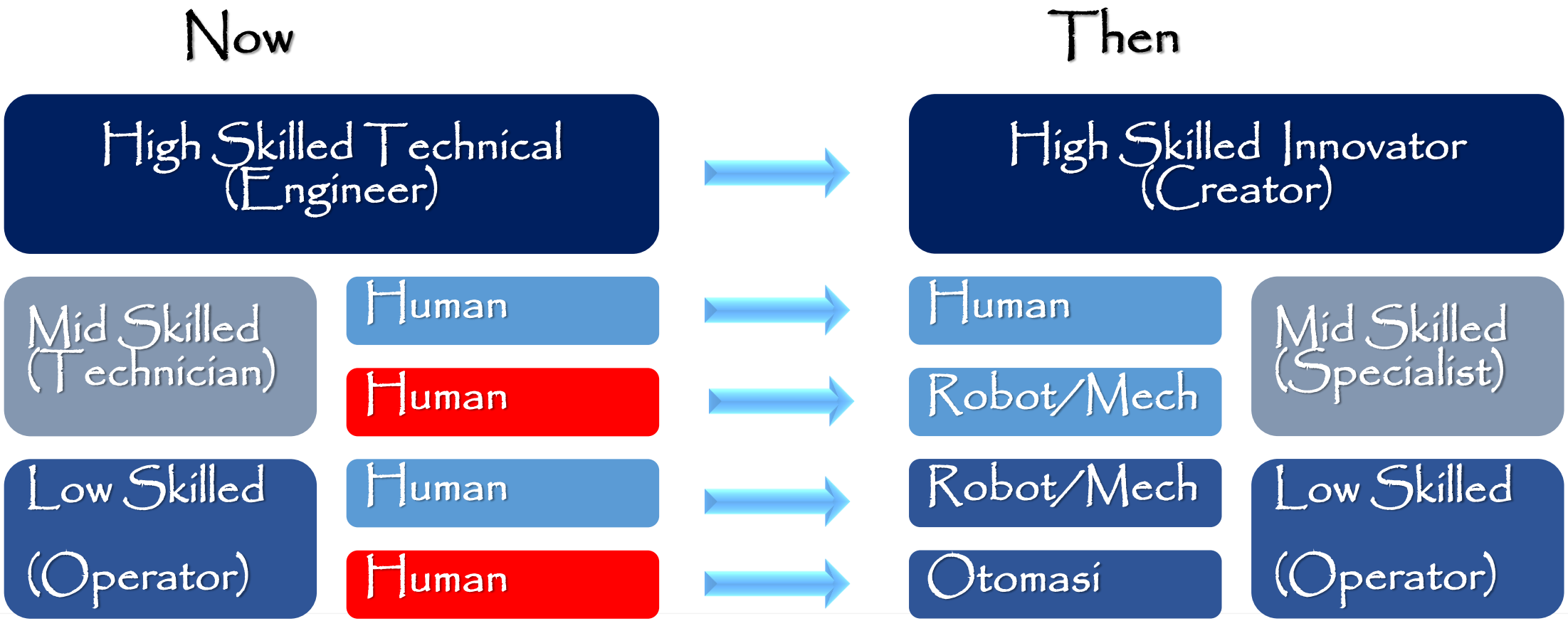
Drones Replace Delivery Personnel



- Amazon has tested delivering goods using drone up to 8 km in 2017
- It only requires 13 minutes from posting order to order delivered

Drones As Construction Tools

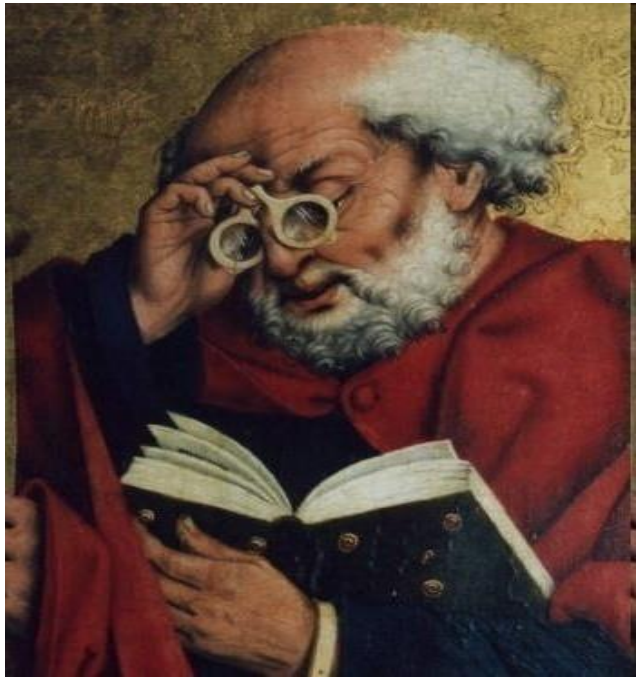
Human Capital in Disruptive Era



Untuk hidup anak-anak kita

Di abad 21

Bekerja dg kalender agraris abad 19

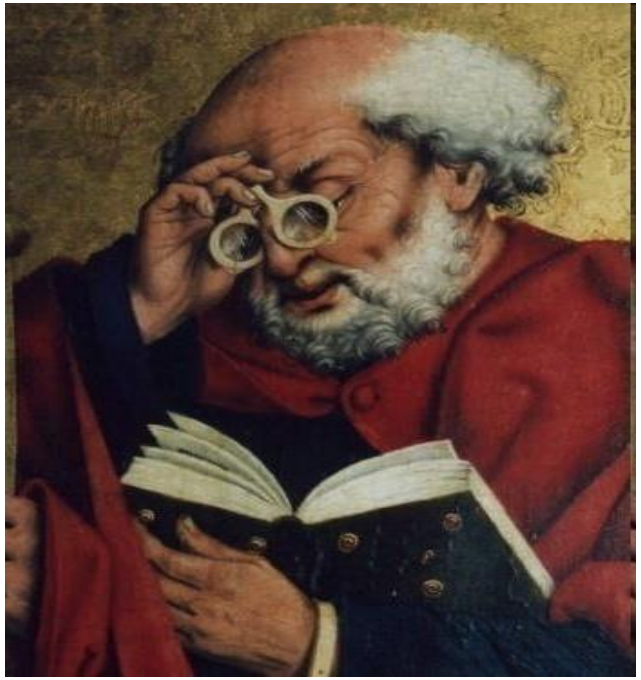


Diciptakan abad 11

Untuk hidup anak-anak kita

Di abad 21

Bekerja dg kalender agraris abad 19



Diciptakan abad 11

The Great Unbundling

- Elemen kuliah dengan mata kuliah
- Mata kuliah dengan ijasah
- Mahasiswa dari program studi
- Dosen dengan kampus tertentu
- Layanan pendukung dari kegiatan pendidikan

Source: **Sabina Jeschke**, Engineering Education for Industry 4.0, 2016

! Challenges of future teaching and learning must be turned into opportunites for change!

Structural Revolution
Bisnis Model
Kurikulum

Akreditation Revolution
Program fleksibel
Modular degree

Learning Revolution
"DO-IT-YOURSELF"
Ubiquitus

Teaching Revolution
Pengajaran Masif
Kultur Digital

Digital culture

→
- Digital technologies pervade and **connect** all aspects of daily life
- Development of **various digital lifestyles**
- **New mental models**, e.g. distance no longer dominated by geogr. distances

!
- New forms of social communication, participation and organisation
- Leading to globalization of education
- New learning/problem solving styles
- NLP, Web „4.0" on its way

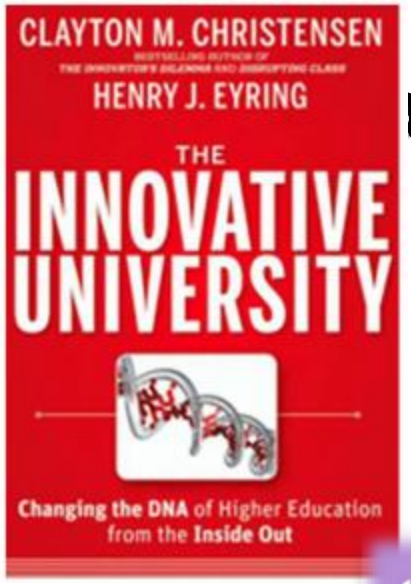
↗
- Semantics makes „search" more efficient
- Googles on-demand philosophy spreading
- Melting of all types of information, seamless integration

Individualization

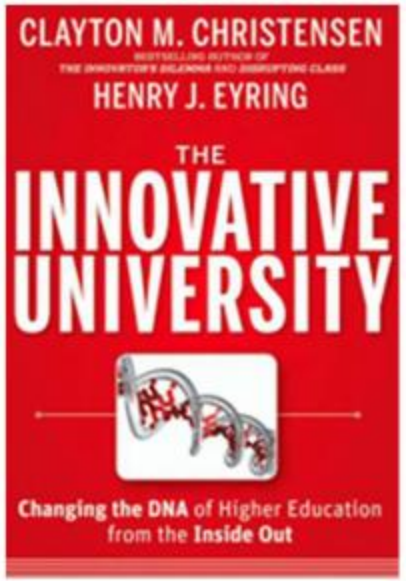
→
- Individualism – a global phenomenon
- Few strong, many lose relationships

!
- **Complex biographies and identities**
- Personalisation and individualisation in learning and education **„DIY education"**
- Social cohesion shifted from physical to virtual world
- Distances in mind sets become even more visible

↗
- Individual education for the masses
- Self-paced learning
- Individual modular degrees



ısi Struktural : Model



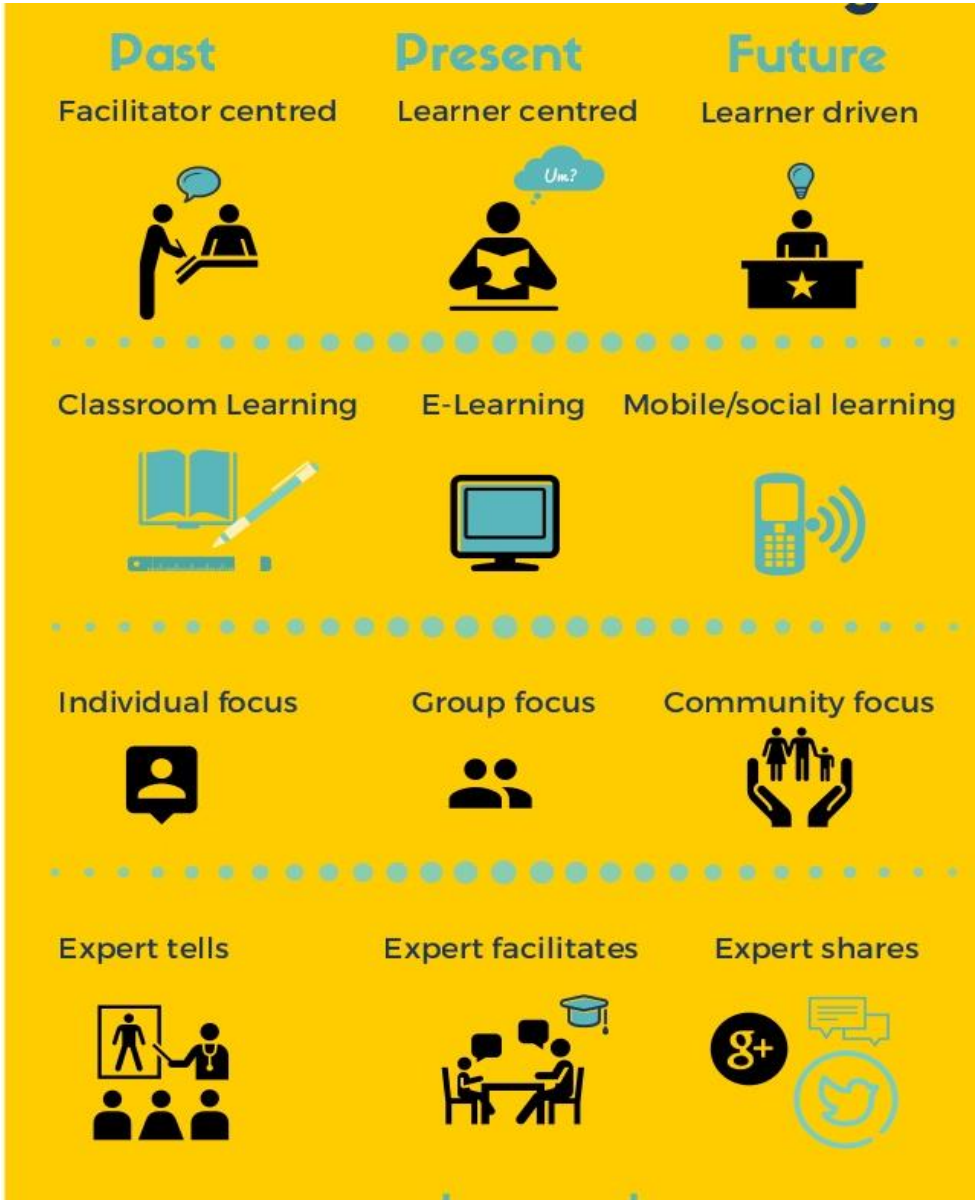
usi Akreditasi

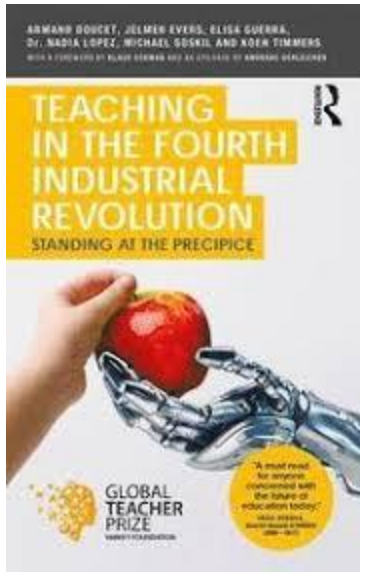
21st Century Learning Framework – Student Outcomes

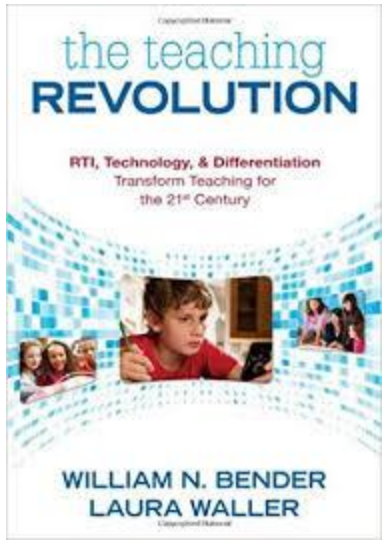
High Order Thinking and Multiple Intelligences

- Learning and Innovation Skills (4Cs: Critical Thinking, Communication, Collaboration and Creativity)
- Content Knowledge and 21st Century Themes
- Information, Media and Technology Skills
- Life and Career Skills:

Revolusi Mengajar







Revolusi Mengajar

digg

Bloglines

facebook

LinkedIn

flickr

twitter

Technorati

last.fm

YouTube

REARDEN commerce

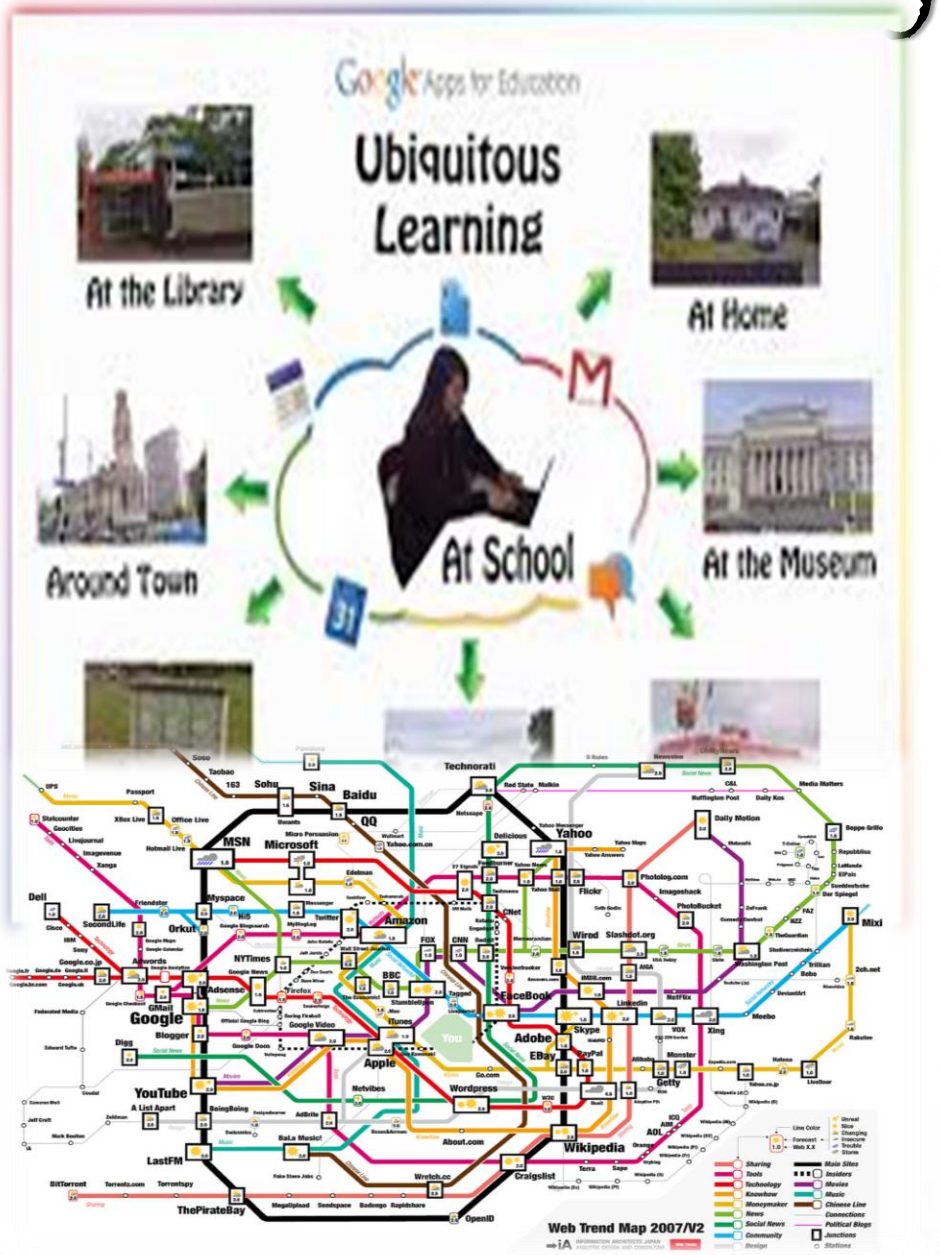
Google

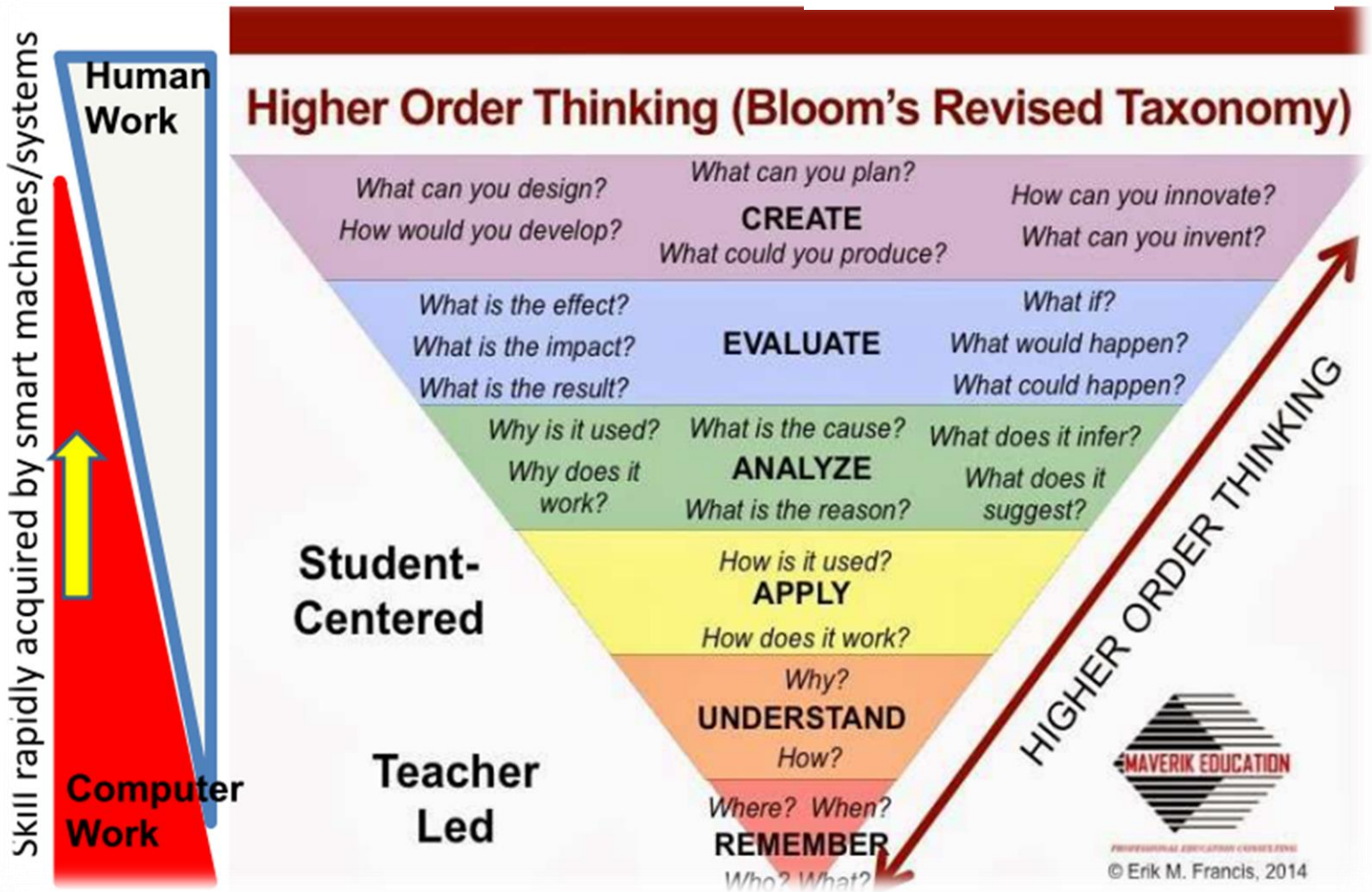
wikia
Find and collaborate with people who love what you love.

YAHOO!

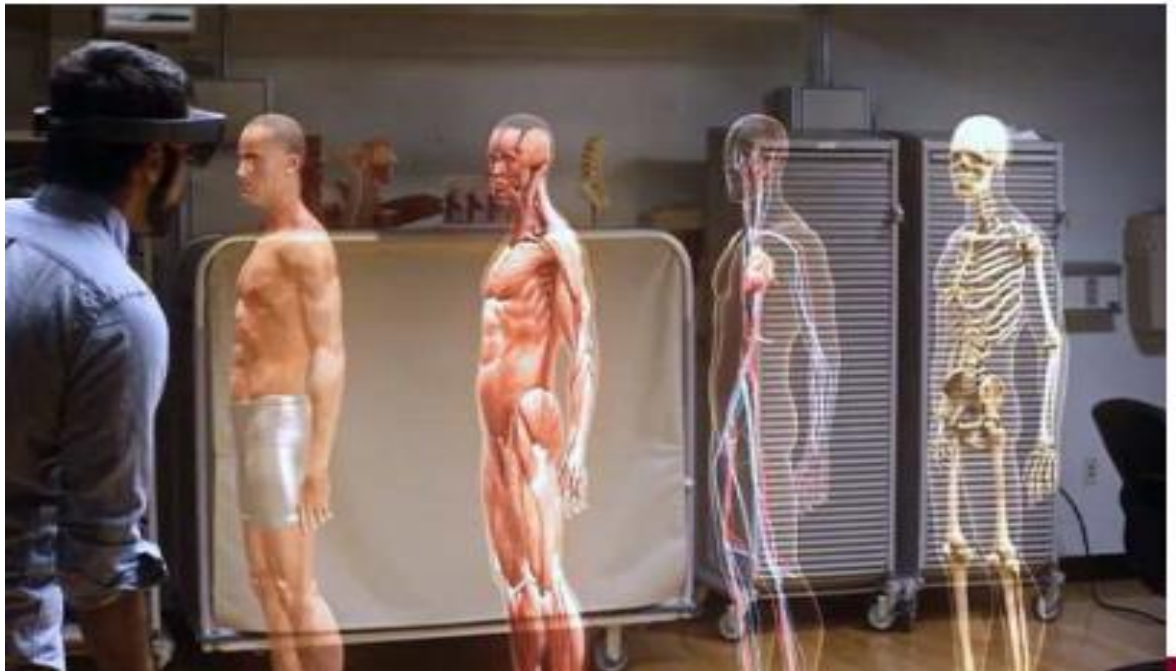
Flixster
Stop watching bad movies.

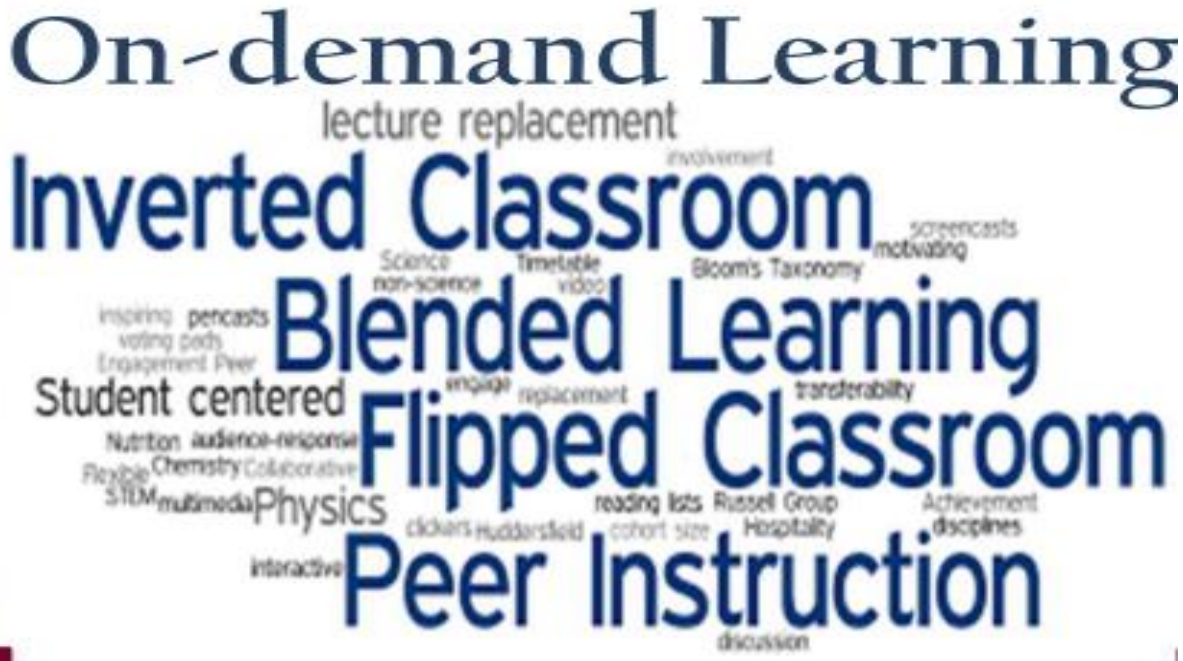
Revolusi Belajar





Revolusi Belajar





Apakah smart campus itu....

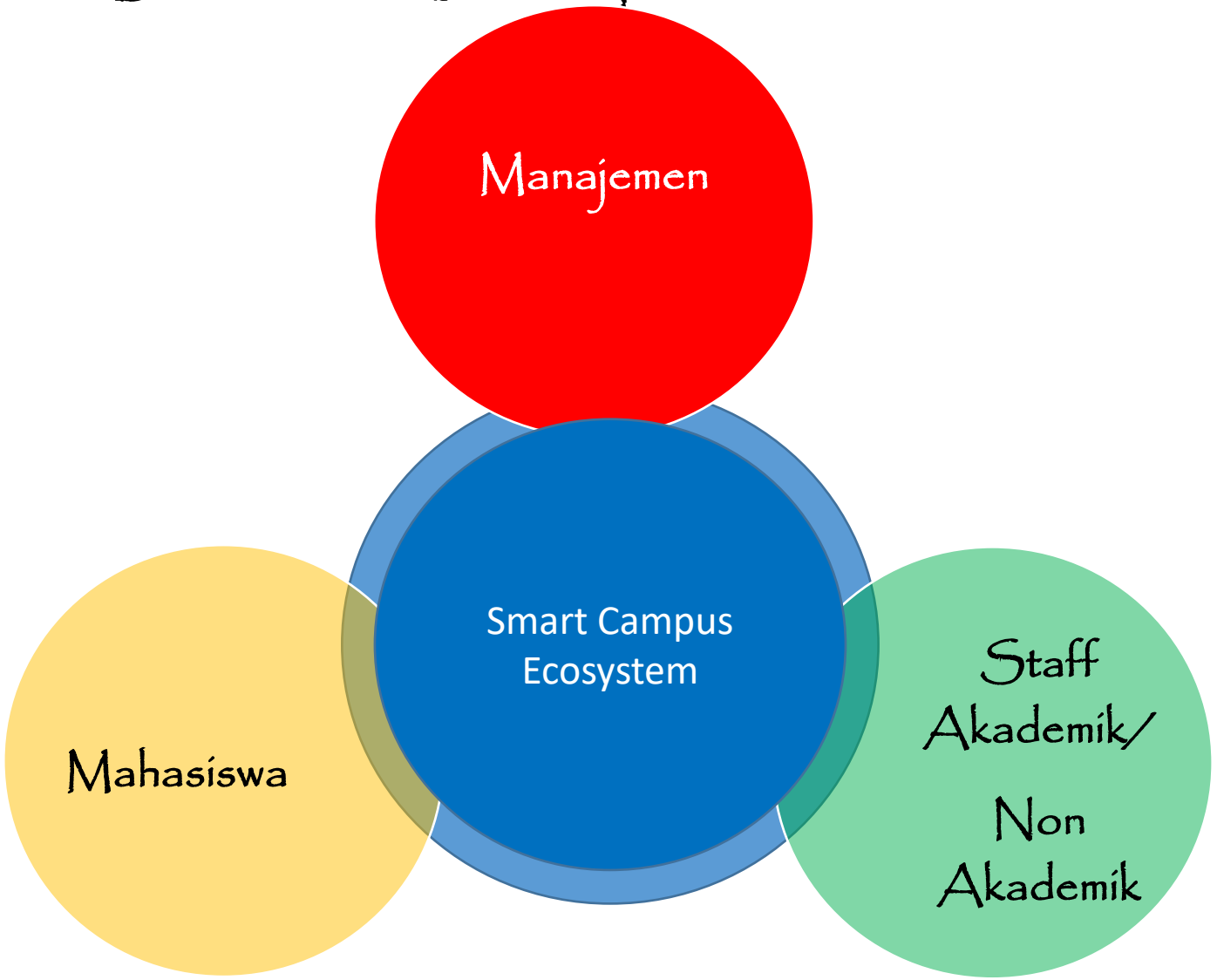
- **Smart campuses**, adalah "places where devices and applications create new experiences or services and facilitate operational efficiency"
  - Integrasi teknologi digital dalam proses pembelajaran (mendukung TEMUS learning)
  - Teknologi terintegrasi memudahkan kehidupan warga kampus
  - Teknologi terintegrasi memudahkan pengelolaan terhadap berbagai kegiatan dan sumber daya kampus oleh manajemen, staff akademik/non akademik, mahasiswa, orang tua, regulator, dan pemangku kepentingan lainnya
  - Teknologi terintegrasi yang menjamin kampus tertib, aman, dan nyaman
  - Dll
- **Smart campus merupakan tulang punggung dalam transformasi digital dari sebuah perguruan tinggi**

Smart Campus Transform Teacher-centered to Student- centered Learning (Martin, 2017)

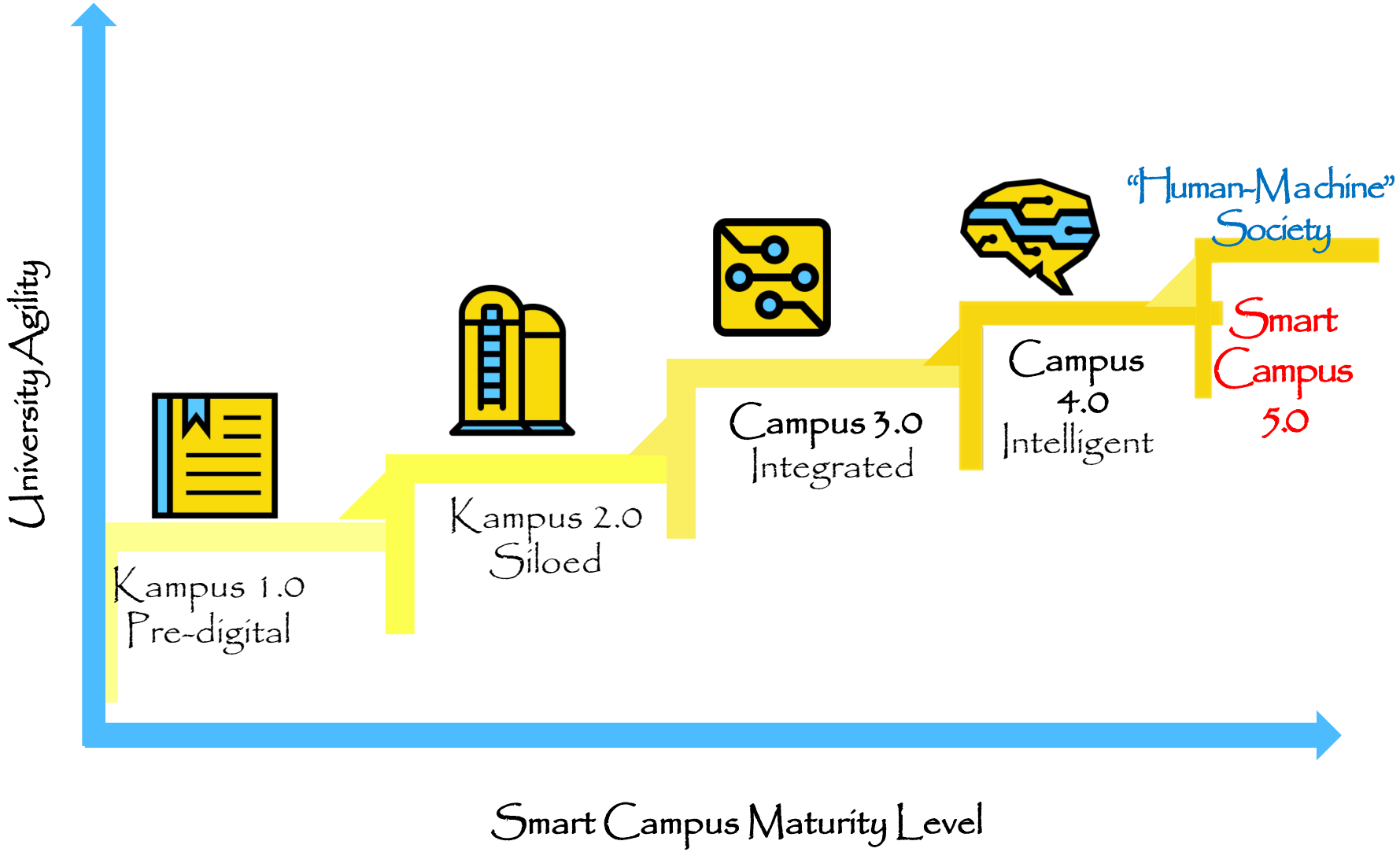
FACULTY OF COMPUTER SCIENCE

Smart campus integrates Social and Technical Infrastructure to form Smart Learning Environment (SLE): Infrastructure based on functionality and implementation in educational context

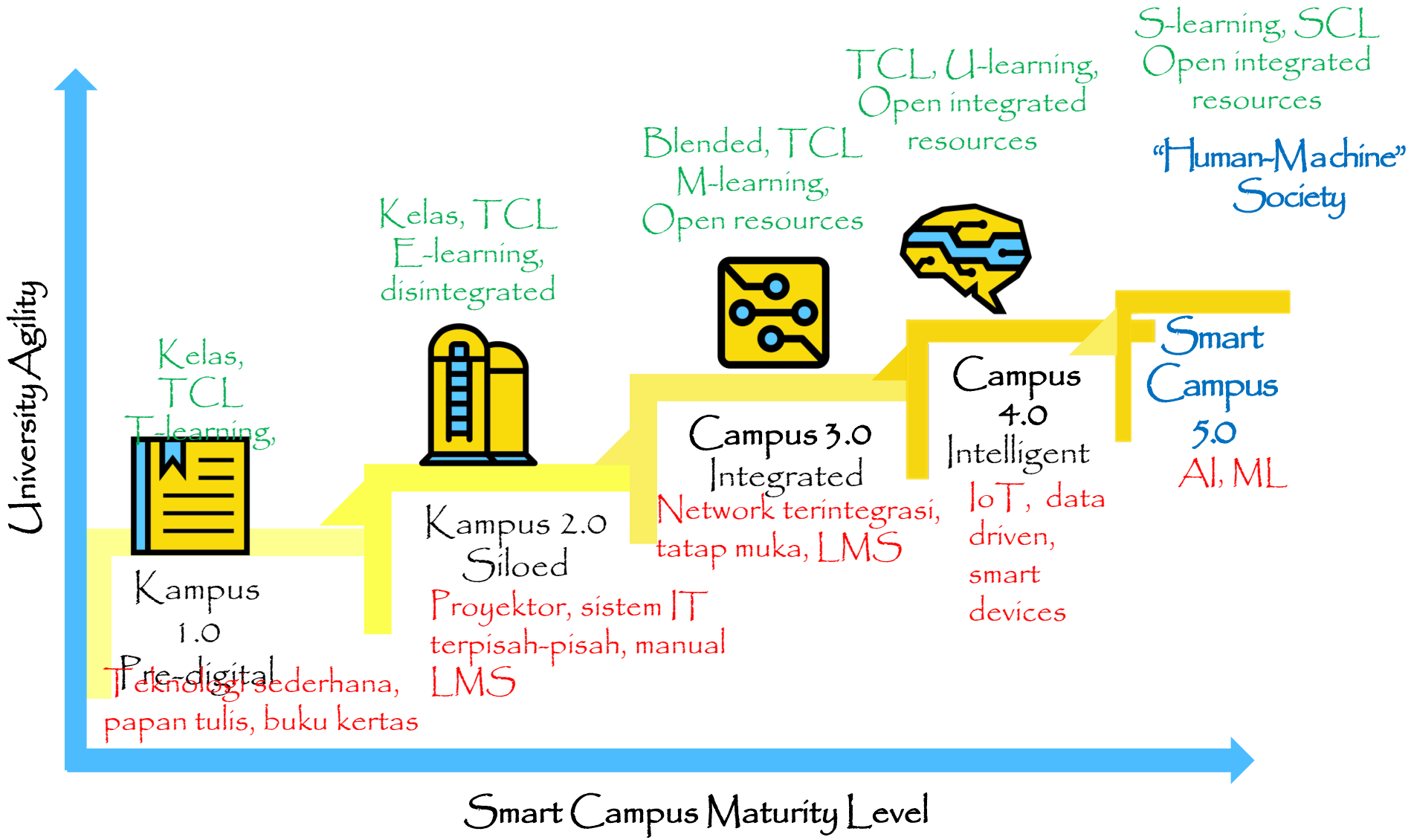
Ekosistem Smart Campus



Transformasi Kampus dari Pre-Digital to Smart Campus



Transformasi Kampus dari Pre-Digital to Smart Campus



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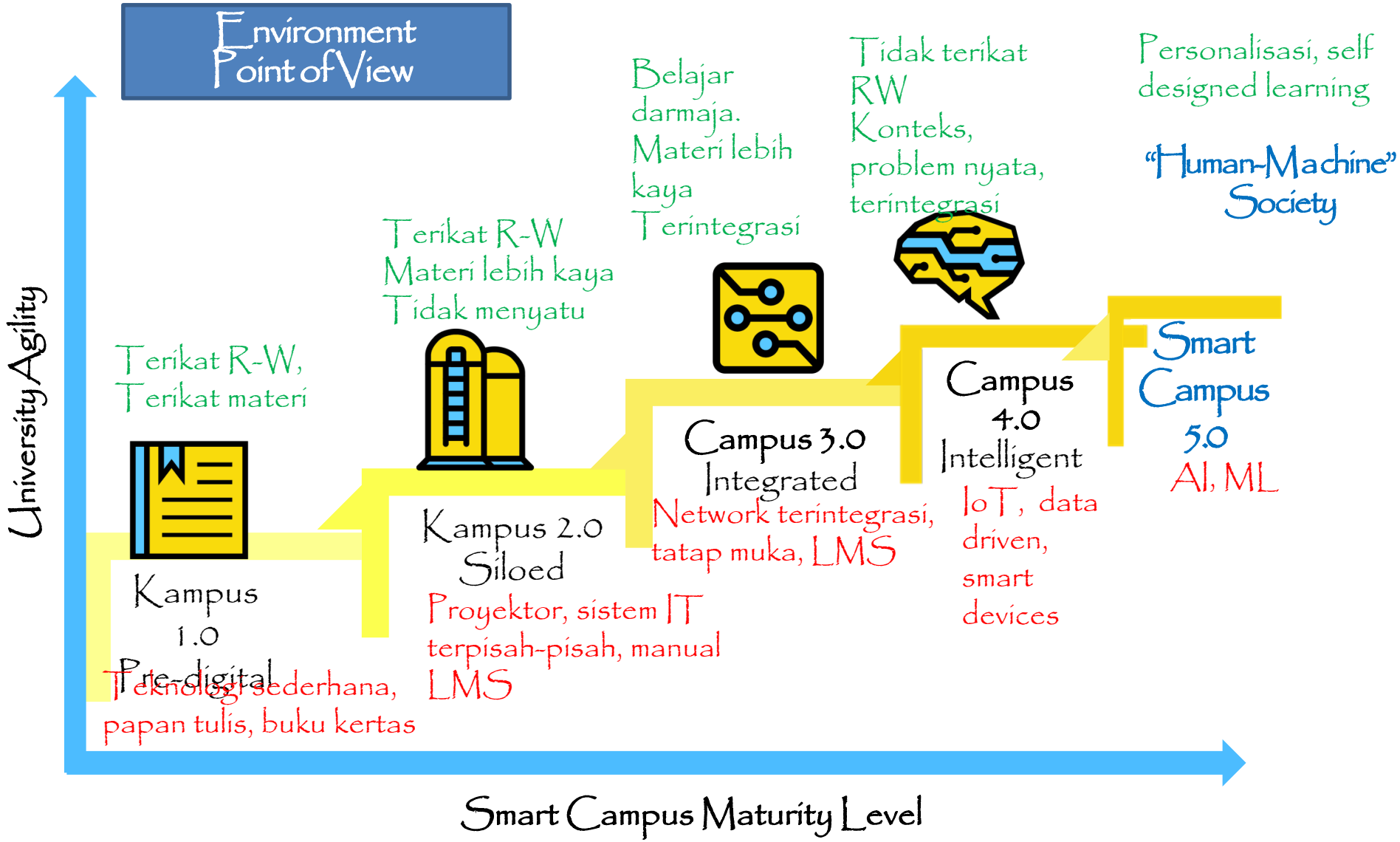
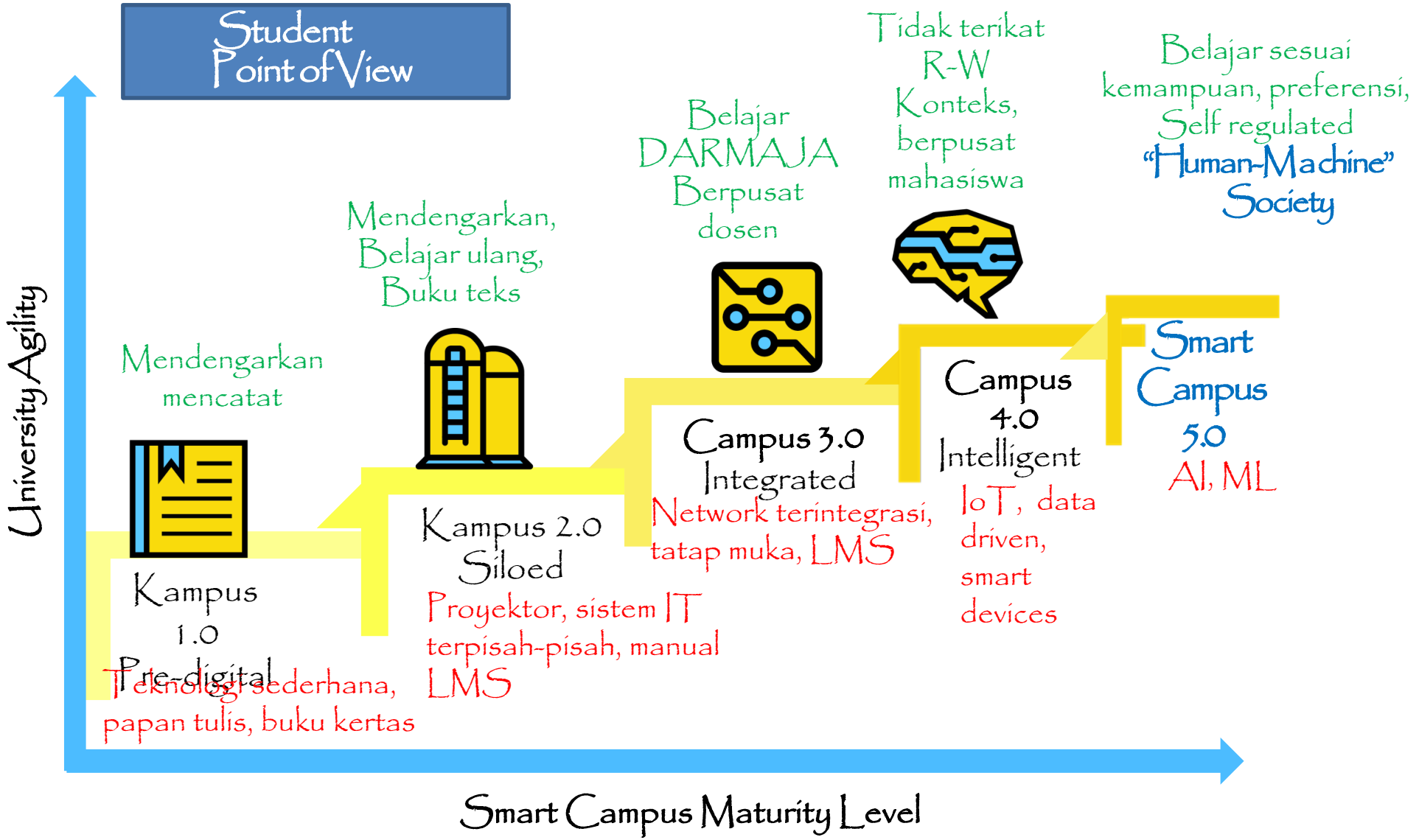
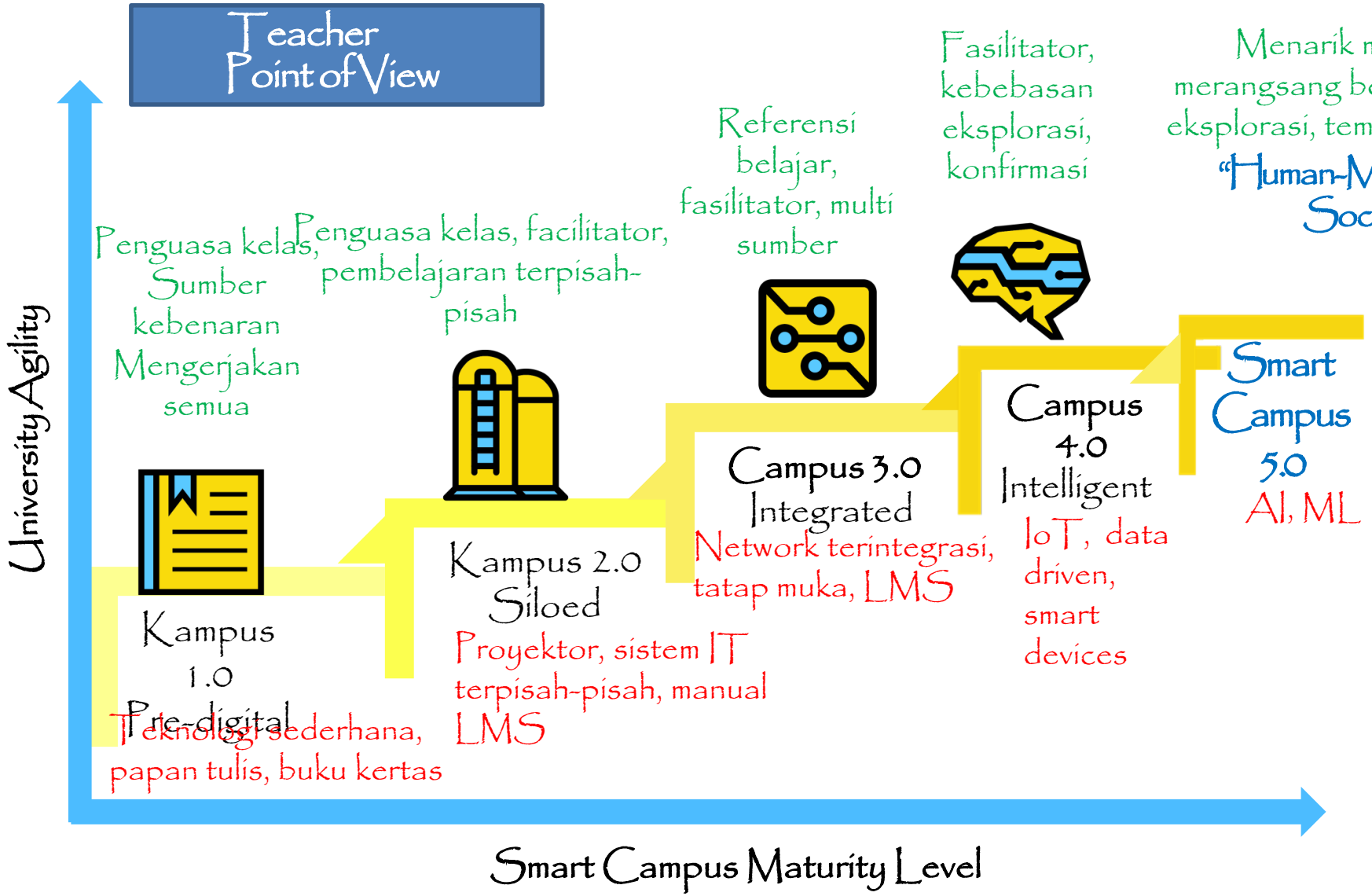


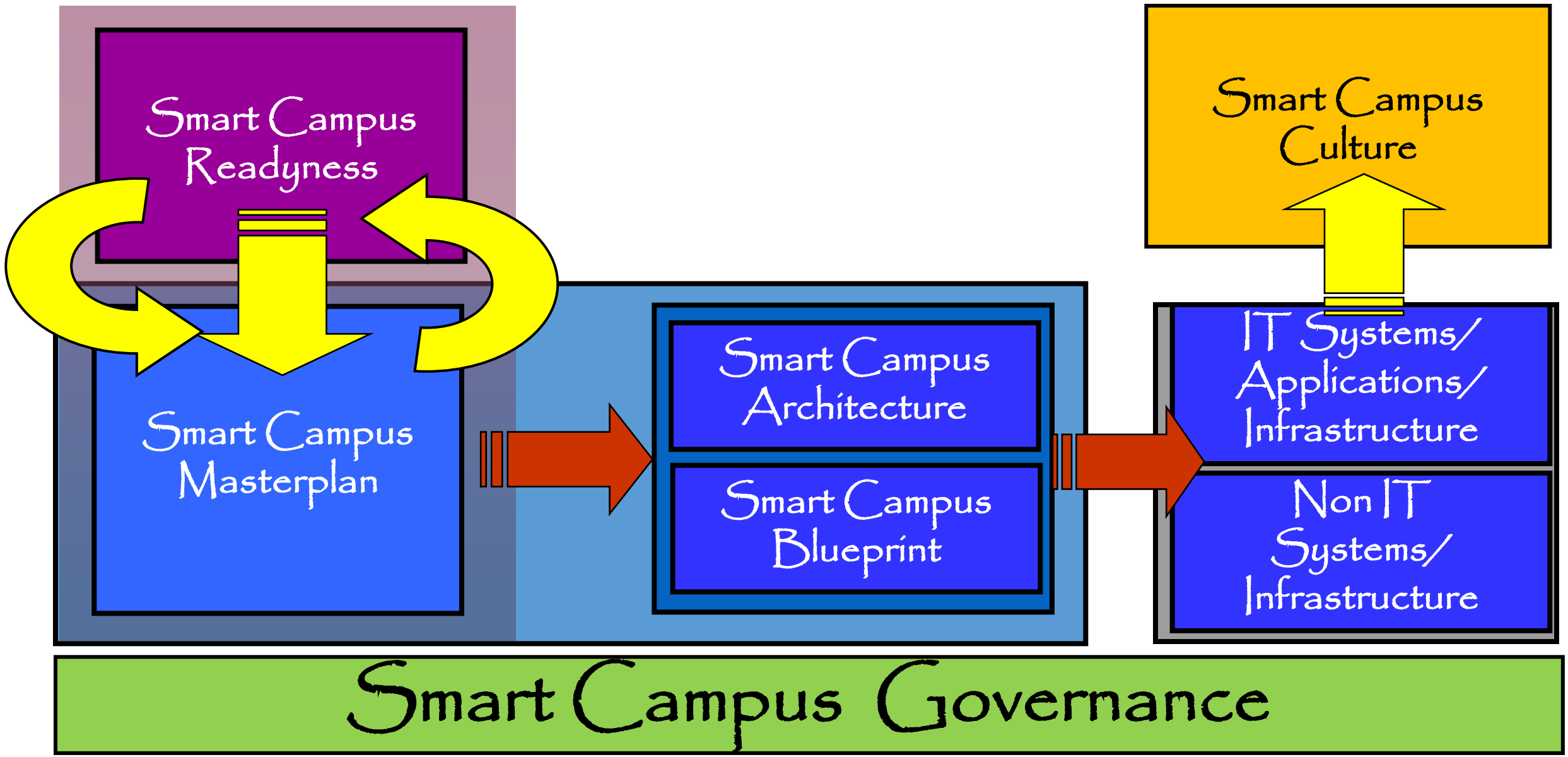
Transformasi Kampus dari Pre-Digital to Smart Campus



Transformasi Kampus dari Pre-Digital to Smart Campus



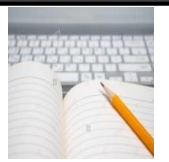
Smart Campus Development



Pendekatan evolosioner smart campus

Evolution Stages Functions	Campus 1.0 Pre-digital	Campus 2.0 Siloed	Campus 3.0 Integrated	Campus 4.0 Intelligent	Campus 5.0 Smart Campus
1. Pembelajaran	Traditional Learning, Time- & Location-Constrained	LMS, Digital-Supported Learning	SPOCS, Flexible Time Learning	MOOCS, AR, Personalized & Global Learning	Connected but Seamlessly to all Learning Sources, AI
2. Penelitian	Conventional Research	Digital Research Management & Disseminatio n	Collaborative & Open Data Research, Virtual Groups	Big Data Research Analytics	Multidiscipline, Networked, Collaborative
3. Pengabdian Masyarakat	Academic-Community Consortium	Digital Community Relations	Digital Community Development	Digital Co-creation Community	One-stop service, pervasive
4. Administrasi	Manual System	Ad-hoc System	Integrated ERP System	Student Lifecycle Intelligence	Prescriptive
5. Focus of Knowledge Area	Develop Center of Excellence: Science & Technology – Business – Entrepreneurshp etc.,				CoE

Pembelajaran di Smart Campus

	Lokasi	Waktu	Sumber Daya	Konteks	Personalisasi	Teknologi
Traditional	Traditional Learning Pembelajaran kelas seperti biasa					
Web based learning	Tak terbatas	E-Learning Belajar DARMAJA (dari mana saja)				
Mobile learning	Tak terbatas		Mobile Learning Belajar DARMAJA dan Kapan Saja			
Ubiquitous learning	Tak terbatas Belajar sesuai konteks				Ubiquitous Learning	
Seamless learning	Limitless – Seamless – Smart Learning Belajar tanpa Batasan sesuai dengan profil masing-masing mahasiswa					


LIVE
THE FUTURE
Agenda 2020


ANIXTER

Terima kasih yaa...

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