



| SMU Academy

Human Capital In the Age of Disruption

DR LIM LAI CHENG
EXECUTIVE DIRECTOR

'PERMA TEMPS' ▾

Straits Times, 11 February 2017

THE NEW REALITY FOR MANY IN A CHANGED EUROPE

NEWS FLASH

More than half of new jobs created in EU since 2010 have been through temporary contracts.
([Link](#))

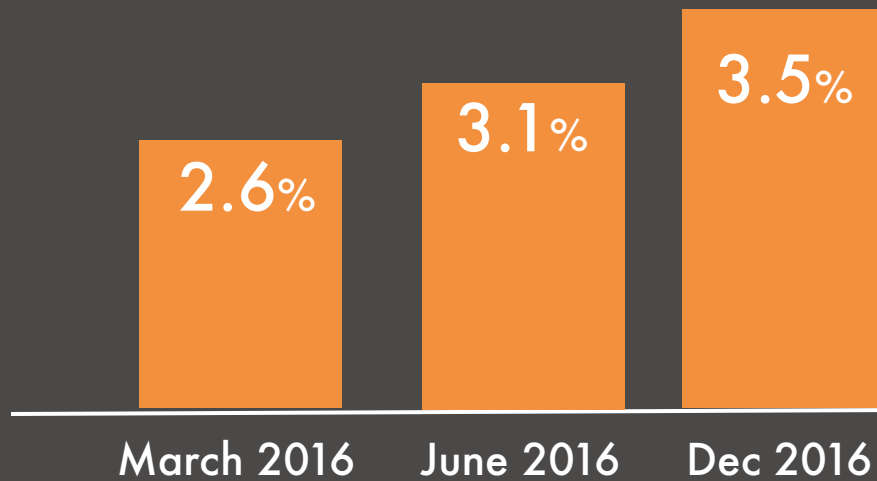


CNA, 15 Sep 2016

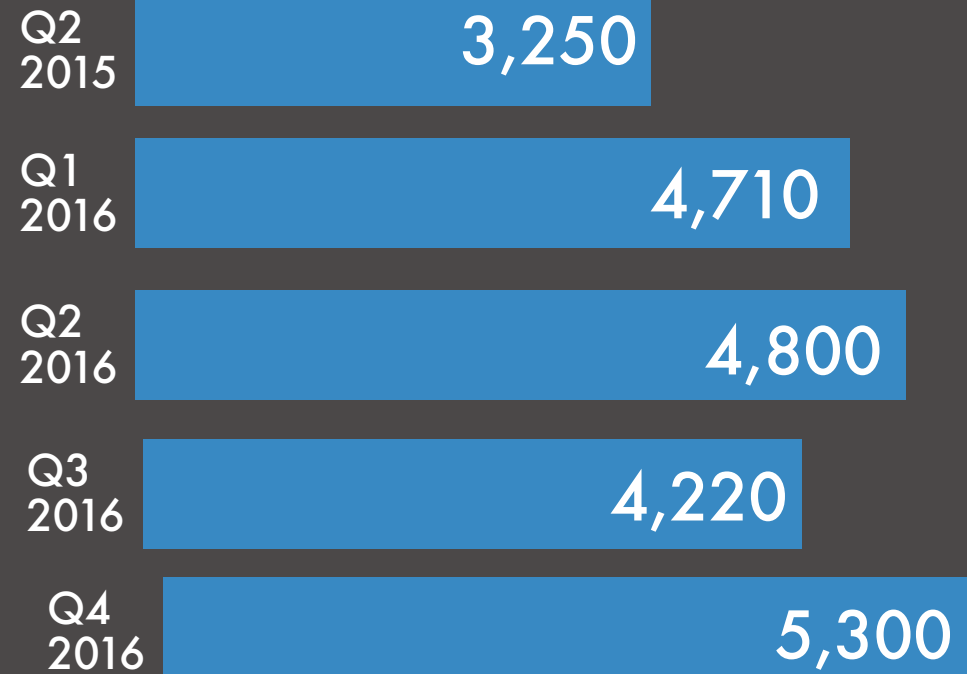
SINGAPORE STATISTICS

UNEMPLOYMENT

Citizens

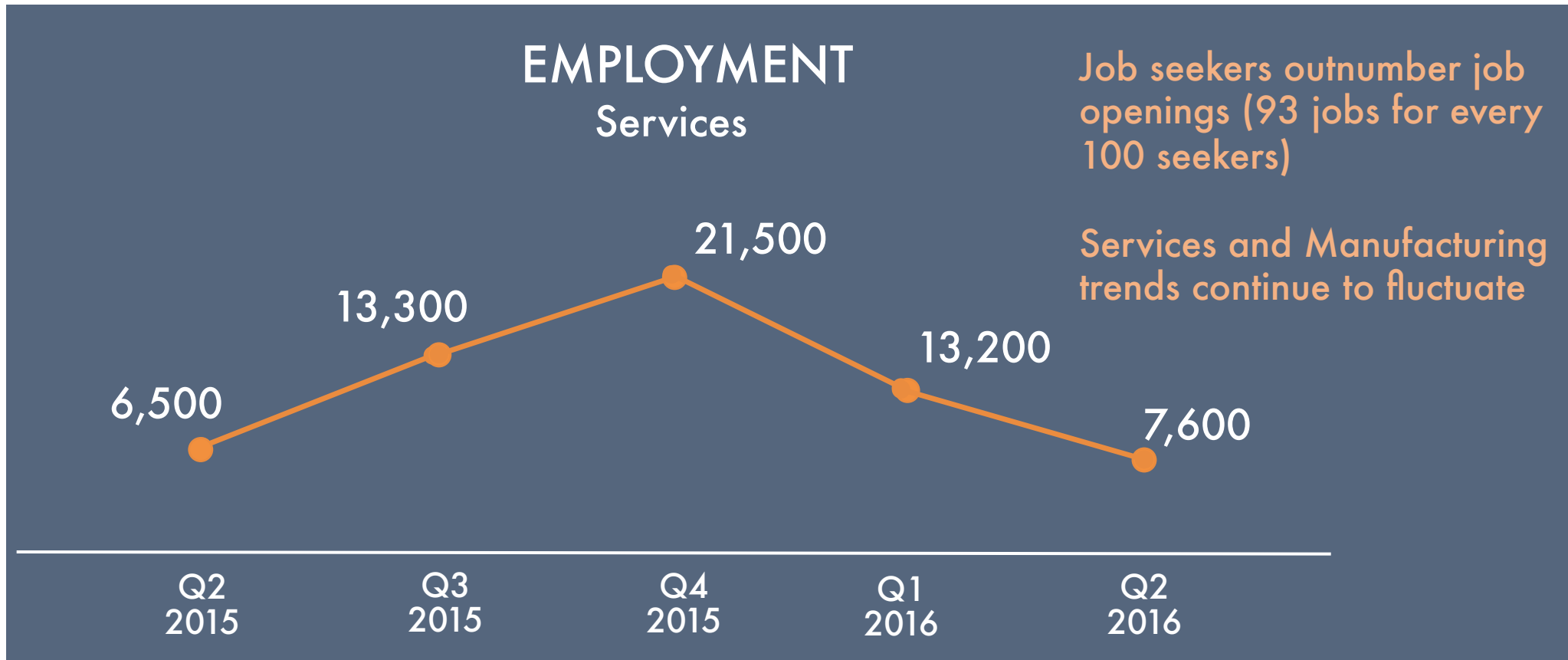


REDUNDANCIES



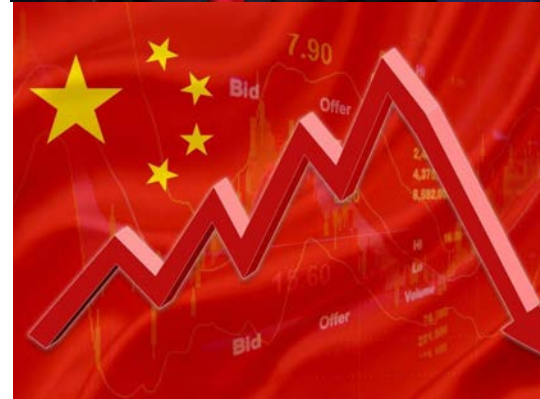
CNA, 15 Sep 2016

SINGAPORE STATISTICS



CAUSES/EFFECTS? ▾

- Changing consumption patterns
- Rising market volatility
- Rising tribalism & fallout from the US election results, Brexit, etc. Weak global growth (China, Europe, US)



DIGITAL TECHNOLOGY IS DISRUPTING THE STATUS QUO IN EVERY INDUSTRY

- Up to 47% of jobs (15 mil) could be automated within 20 years
- Intelligent machines will outnumber humans by 2030
- Top 10 in demand jobs in 2010 did not exist in 2004
- 65% of school children today will end up doing jobs not yet invented



DISRUPTIVE TECH INNOVATIONS

Mckinsey Global Institute, 2013

- Mobile Internet
- Automation of knowledge work
- Cloud technology
- Advanced robotics
- Internet of things
- Autonomous vehicles



DISRUPTIVE TECH INNOVATIONS

Mckinsey Global Institute, 2013

- Next generation genomics
- Energy storage
- 3-D printing
- Advanced materials
- Renewal energy
- Advanced oil & gas exploration & recovery



JOB LOSSES ▼

**PROBABILITY THAT
TECHNOLOGY
WILL LEAD TO JOB
LOSSES WITHIN
THE NEXT 2
DECADES**

—
The Economist, 2013

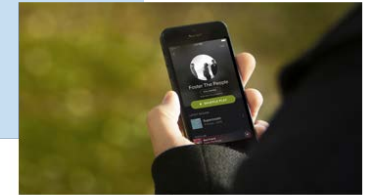
| Job | Probability |
|-----------------------------|-------------|
| Telemarketers | 0.99 |
| Accountants & Auditors | 0.94 |
| Retail Salespersons | 0.92 |
| Real estate sales agents | 0.86 |
| Word processors and typists | 0.81 |
| Commercial pilots | 0.55 |
| Economists | 0.43 |
| Health technologists | 0.40 |
| Chemical engineers | 0.02 |
| Clergy | 0.008 |
| Dentists | 0.004 |
| Recreational therapists | 0.003 |

THREATS

20 INDUSTRIES MOST THREATENED BY TECHNOLOGICAL DISRUPTION

The Investopedia, 2015

- Travel agencies
- Newspapers + distributors
- Traditional film and TV distributors
- Language translators
- Secretaries, phone operators, executive assistants
- Booksellers + publishing firms
- Financial professionals
- Job recruiters
- Taxi and Livery companies
- Hotel/Motel Industry



udemy
"academy of you"



hulu

NETFLIX

Expedia

链家

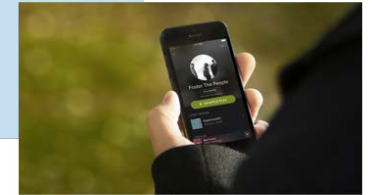
airbnb

THREATS

20 INDUSTRIES MOST THREATENED BY TECHNOLOGICAL DISRUPTION

The Investopedia, 2015

- Driving jobs
- Fighter pilots
- Manufacturing , logistics & inventory managers
- Retail cashiers
- Fast food workers
- Postal workers
- Radio DJs + music stores
- Teachers and college professors
- Libraries
- Farmers & ranchers



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hulu

NETFLIX

Expedia

链家

airbnb

The Straits Times, 16 Feb 2016

NO JOB SAFE FROM ROBOTS, SCIENTISTS AT AAAS WARN

Pepper, 2016

Drivers, caddies, sex workers - scientists warn that no job category will be safe from takeover by robots as rapid developments in artificial intelligence (AI) threaten a new era of mass unemployment.

WARNING!



SKILLS GAP ▼

Mckinsey & Co, 2015

40 Million

In deficit of high-skilled workers in advanced countries

90 Million

In surplus of low-skilled workers in advanced countries

UNICORNS & THE NEW ECONOMY

Private companies valued at \$1 billion or more



| | | Founded | Country | Sector |
|-----------------------|---------|---------|---------|-----------|
| Uber | \$62b | 2009 | USA | Software |
| Xiaomi | \$46b | 2010 | China | Hardware |
| Airbnb | \$25.5b | 2008 | USA | Software |
| Palantir Technologies | \$20.5b | 2004 | USA | Software |
| Didi Kuaidi | \$16b | 2012 | China | Software |
| Snapchat | \$16b | 2011 | USA | Media |
| China Internet Plus | \$15b | 2003 | China | Software |
| Flipkart | \$15b | 2007 | India | Retail |
| SpaceX | \$12b | 2002 | USA | Aerospace |
| Pinterest | \$11b | 2010 | USA | Media |

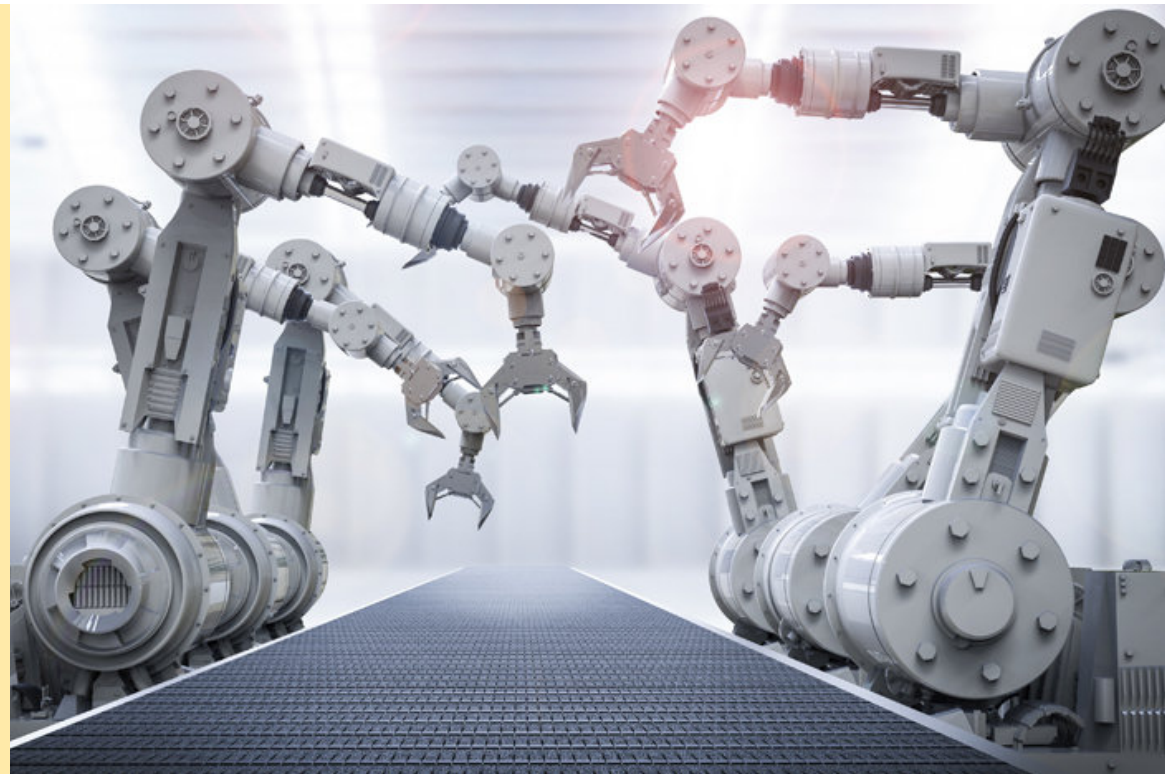
Source: fortune.com/unicorns

OUTSOURCING & THE NEW ECONOMY ▼

CIO.COM, 17 February 2017

NEWS FLASH

In the future, IT outsourcing success will be based not on the geographic delivery model, but on the capability to leverage digital labor.



SG's INDUSTRY TRANSFORMATION PLANS

- ITPS by sector drawn up.
- There are new job roles which require skilled professionals
- There is currently a shortage of specialised skills across many sectors
- Public-private partnerships are being forged to bring about innovation
- Firms are being incentivised to develop human capital (HCPP)
- There is a range of programmes and funding for companies and individuals to re-tool, re-skill and upskill themselves
- Many institutions including universities are co-opted to conduct skills training

GROWTH FOR SPACE & SATELLITE SECTOR

Straits Times, 18 Nov 2016

**SPACE &
SATELLITE
SECTOR** ONE
OF NEW
CLUSTERS EYED
FOR GROWTH

NEWS
FLASH



Addvalue is finalising a joint lab collaboration with A*Star's Institute for Infocomm Research on enhanced satellite comm technologies

ROADMAP FOR LOGISTICS

**NEWS
FLASH**

**ROADMAP TO
BOOST
SINGAPORE'S
ROLE AS
GLOBAL
LOGISTICS HUB**



Transformation to add \$8.3b to sector and create 2,000 PMET jobs by decade's end

Straits Times, 18 Nov 2016

NEW TECH FOR INTERBANK PAYMENTS

**S'PORE
TESTING NEW
TECHNOLOGY
FOR
NEWS INTERBANK
FLASH PAYMENTS**



Blockchain technology, digital currency to speed up payments, among latest fintech initiatives launched

Straits Times, 18 Nov 2016

BEEFING UP CYBERSECURITY

NEWS FLASH

FINANCIAL INSTITUTIONS URGED TO BEEF UP CYBER SECURITY



Estimated losses from cyber risks to be between US\$300 billion and US\$1 trillion a year

NEW FULL- TIME DEGREES

Straits Times, 19 Nov 2016

NEW FULL- TIME DEGREES

**NEWS
FLASH**

Data analytics sector will contribute \$1 billion to economy by end 2017 - need for 2,500 analytics professionals in the next 5 years (EDB)



WEF HUMAN CAPITAL REPORT 2015

TOP TEN COUNTRIES
WITH POPULATION
HIGHLY SKILLED &
HIGHLY EDUCATED

| | Human Capital Index 2015 | Global rank* |
|-------------|--------------------------|--------------|
| Finland | | 1 |
| Norway | | 2 |
| Switzerland | | 3 |
| Canada | | 4 |
| Japan | | 5 |
| Sweden | | 6 |
| Denmark | | 7 |
| Netherlands | | 8 |
| New Zealand | | 9 |
| Belgium | | 10 |

WEF HUMAN CAPITAL REPORT 2015

**NEWS
FLASH**

**TOP TEN ASIA
PACIFIC
COUNTRIES
LEVERAGING
THEIR HUMAN
CAPITAL**



Asia and the Pacific: Top 10 economies leveraging their human capital

Human Capital Index 2015

Global rank*

| | |
|-------------|----|
| Japan | 5 |
| New Zealand | 9 |
| Australia | 13 |
| Singapore | 24 |
| Korea, Rep. | 30 |
| Philippines | 46 |
| Mongolia | 51 |
| Malaysia | 52 |
| Thailand | 57 |
| Vietnam | 59 |

THE MILLENNIALS ▾

THE LARGEST GENERATION IN WORKFORCE

Characteristics:

- Impatient to move on - fewer believe in learning the ropes and taking time to develop skills on the job
- High expectations
- Values job flexibility, company culture and having a sense of mission
- Watch out for Gen Z!



GEN Z ^{vs} GENS X & Y

| GEN X (MID 60s – EARLY 80s) | GEN Y (1980s – late 1990s) MILLENNIALS | GEN Z (Around 2000) |
|-----------------------------|---|---------------------------|
| Use Technology: PC | Tech Savvy: 2 screens | Tech Innate: 5 screens |
| Not tech savvy | Think in 3D | Think in 4D |
| Mistrust institutions | Share all | Judiciously share |
| Self-involved | Slacktivists | Active Volunteers |
| Accept diversity | Multi-cultural | Blended (race and gender) |
| Self-reliant | Tolerance | Togetherness |
| Still happy with print | Communicate with text | Communicate with images |
| Use stuff | Share stuff | Make stuff |



**HACK YOUR
EDUCATION**

**Anti-college
activism:
The growing
movement
against the
four-year
degree**



Dale Stephens, Founder

PISA (OECD) TESTS

BBC News, 1 December 2016

**NEWS
FLASH**

**SINGAPORE
TOP FOR
READING,
SCIENCE &
MATHEMATICS**



Singapore has been ranked as having the highest achieving schools.

FUTURE OF LEARNING



Hone learning to learn skills

- Recognise that career pathways are going to be more dynamic and less predictable
- Acquire a fair balance of job-related skills as well as cross-job skills (such as pattern recognition, negotiation, strategy, communication, problem-solving)
- Build competencies in contrasting areas
- Be adaptable and agile

FUTURE OF LEARNING

Be part of the creator-led economy

There will be demand for high-skilled experts who are **creators** – with deep expertise and competency in domain of practice,

- able to integrate content across fields and sectors to create new products and services.
- able to network and collaborate with others
- are able to build an omni-channel career
- able to Enhance, Practise, Learn

Be prepared to go beyond fixed employment with one employer

FUTURE OF CREDENTIALS

**MICRO-
CREDENTIALING
DIGITAL
BADGING &
NANODEGREES**



FUTURE OF TALENT SEARCH

ONLINE
CHALLENGE-
BASED SKILLS
TESTING &
COMPETITONS
FOR UNBIASED
RECRUITMENT



FUTURE OF TALENT MATCH

USING ARTIFICIAL INTELLIGENCE & BIG DATA FOR JOB MATCHING

which **industry** are you looking at?



DID YOU KNOW

Fact:

JobTech is the first Artificial Intelligence and Big Data job technology platform that provides aggregated insights to boost the re-employment chances of jobseekers.

[JOB • TECH]

powering the jobs economy