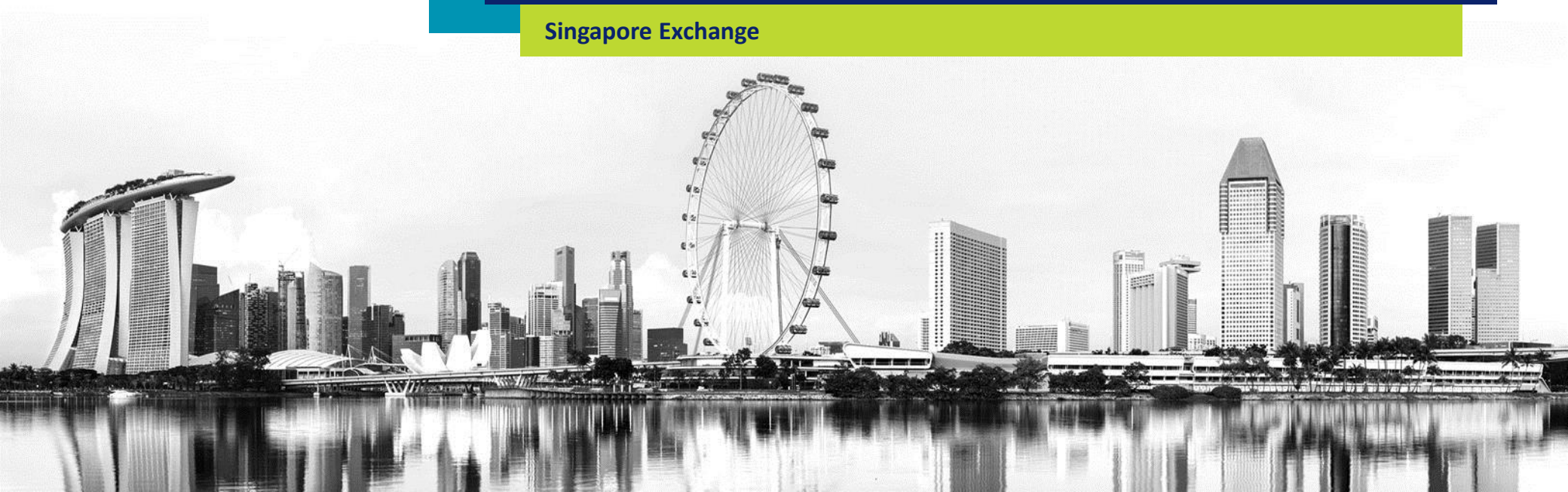


# SGX Sector Primer: Information Technology

Research and Products Team

August 2016

Singapore Exchange



# Key points and highlight of Singapore's IT sector



## Strong comparative returns versus FTSE STI

- Singapore IT sector leaders generate strong comparative returns historically versus the FTSE Straits Times Index

## Technology hardware *cash cows*

- Traditional technology hardware manufacturing companies are *cash cows* (generating strong cashflow)
- These companies pay out consistent dividends

## IT sector is evolving

- Disruptive technologies blurring the lines between sectors
- Companies at risk forced to adapt and innovate

## Singapore well-positioned shift to digital

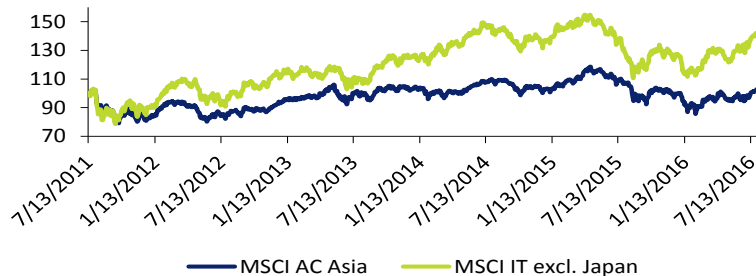
- Singapore has a supportive eco-system to support upcoming key growth areas for the IT sector domestically as the secular shift to digital continues

# Information Technology (IT) Sector

- The Information Technology sector is very broad and generally referred to as the category of stocks relating to R&D and/or distribution of technologically-based goods and services.
- Companies in this sector are mainly engaged in the manufacturing of electronics, software creation, PCs, smartphones, tablets and/or other products and services relating to IT.
- Hardware and IT services are mature sub-segments while higher growth is seen in internet software and services.
- Traditional Technology powerhouses are mostly listed in U.S. and Japan but increasing trend of new listings in other parts of Asia.



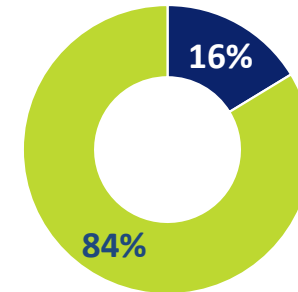
MSCI IT (ex. Japan) versus MSCI AC Asia



Source: Bloomberg. As of 29 July 2016. Base of 100 from 2011

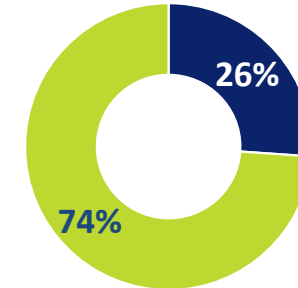
MSCI AC Asia Index

■ IT sectors ■ Other sectors



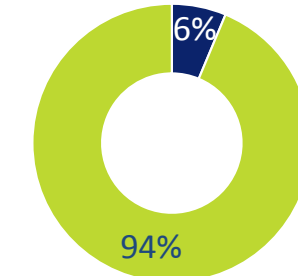
MSCI AC Asia Ex Japan Index

■ IT sectors ■ Other sectors



FTSE ST Catalyst Index

■ IT sectors ■ Other sectors



Source: MSCI

# Opportunity for Singapore in software/internet/gaming

- Broadly categorized into four general industry groups (according to GICS®)

## Traditionally Singapore's stronghold

### Semiconductors

- Building blocks of the entire IT sector  
Essential for consumer electronics products such as PCs, smartphones and tablets
- Highly capital intensive and cyclical industry



### Tech hardware & equipment

- Hardware manufacturing of technology products
- Growth governed by end demand trends for consumer electronics



## Opportunity for Singapore

### Software/Services

- Computer instruction or data which enables the PC to function
- Cloud computing the secular trend: IaaS, PaaS, SaaS



### Internet/Gaming

- Global computer network providing variety of information and communication facilities
- Global internet penetration rising due to proliferation of smartphones/tablets



Source: SGX

# Global technology hardware industry slowing

- Over six billion units of technology products sold annually across the globe
- Smartphones, PCs , LCD TVs and tablets dominate Technology end device spending
- 3.4bn Internet users globally

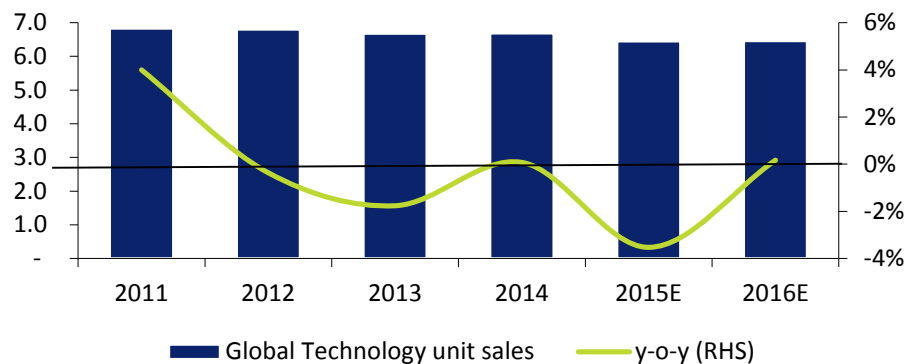
Segment	2015 Mrkt Size (US\$bn)
Semiconductors	335
Software & IT Services	1,222
Technology hardware	969
Gaming	92

Source: Gartner, newzoo, SIA

Major Tech products	2016e unit shipment (m)
Smartphones	1,400
Notebook PCs	256
Tablets	195
LCD TVs	219

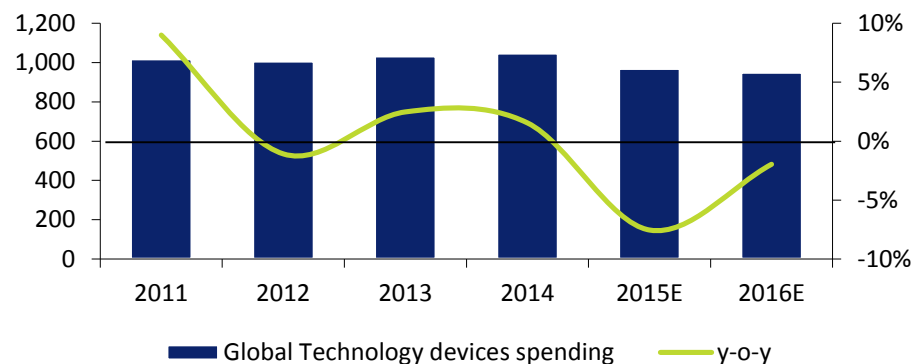
Source: Gartner, newzoo, SIA

## Global Tech unit sales (bn units)



Source: GfK/CTA Digital World

## Global Tech devices spending (USDbn)

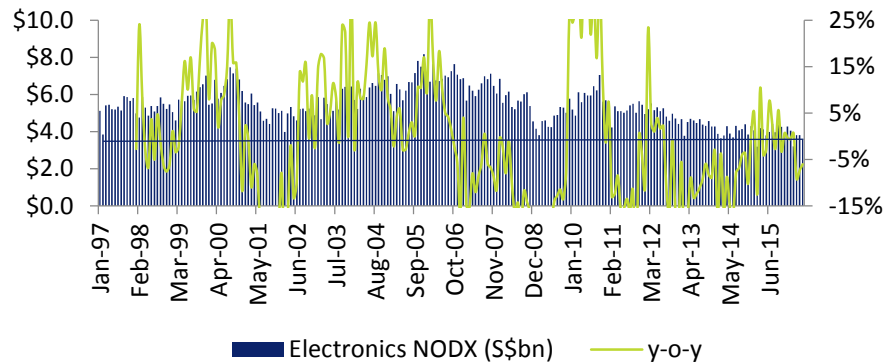


Source: GfK/CTA Digital World

# Key macro-economic drivers to monitor the IT sector

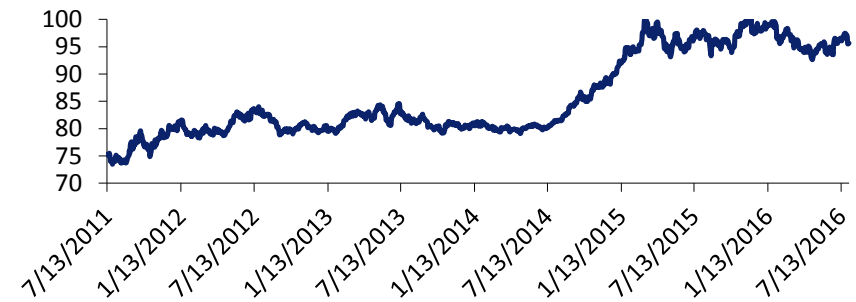
- Global semiconductor sales numbers and book-to-bill ratio for semiconductor equipment suppliers
- Global smartphones, PCs and tablet unit shipment numbers
- Consumer/corporate spending on electronics
- Electrical equipment manufacturing output
- Domestic exports of non oil (NODX) of electronic products
- Currency trends (particularly USD as it is most commonly used for transactions in the Technology sector)

## Singapore's electronics NODX



Source: Singstat

## USD spot index



Source: Bloomberg. As of 29 July 2016

# Key stock drivers differ across IT sub-segments

## Technology Hardware



- Average selling price (ASP)
- Capacity & utilization
- Capital Intensity and depreciation
- End demand
- Inventory
- Margins
- Product cycles

## Internet & Gaming



- Average revenue per user (ARPU)
- Cost per click (CPC)
- Daily/monthly average users (DAU/MAU)
- Gross Merchandise Value (GMV)
- Traffic Acquisition Costs (TAC)

## IT Software & Services



- Customer attrition/churn rate
- Customer lifetime value
- Installed base
- Subscription growth rates
- Recurring revenue
- Revenue per employee

Source: SGX.  
More details in Appendix

# Commonly used valuation methodologies for IT stocks

## Price-to-earnings ratio (P/E)

- P/E derived by dividing stock price by earnings per share
- An overview of how much an investor is paying for a stock
- Indicates the number of years it would take to recoup an investment (assuming profits are constant)
- Forward P/E (using historical range or peer comparison) valuation most commonly used for Technology companies with proven profit track records

## Price-to-book (P/B)

- P/B derived by dividing stock price by book value per share
- Shows an investor how much a stock is worth relative to its book value
- Typically used to value Technology companies with high fixed costs and highly cyclical and/or volatile earnings (e.g. semiconductors)
- Forward P/B mostly used either based on historical trading range or peer comparison

## Price/Earnings to growth (PEG) ratio

- PEG derived by dividing P/E ratio by annual EPS growth rate
- Indicates a stock's value after taking into account earnings growth
- PEG >1 may suggest a company's stock may be overvalued while the converse is true for PEG <1
- Most commonly used for Technology companies with very fast earnings growth

## Discounted cashflow (DCF)

- Present value of an investment (adjusted for time value of money). Sum of value of each period's free cashflow to the firm, discounted back to present
- Analysts typically use 10-year DCF models with a terminal growth rate assumption as a sanity check on valuation (P/E and P/B)

Source: SGX



# A look at the industry chain for Singapore IT stocks

## TECHNOLOGY HARDWARE - UPSTREAM

## TECHNOLOGY HARDWARE - DOWNSTREAM

### SEMICONDUCTOR & ELECTRONICS COMPONENT

### ASSEMBLY, PRODUCTS & DISTRIBUTION

#### SEMICONDUCTOR EQUIPMENT

MFG INTEGRATION TECH LTD  
ASTI HOLDINGS LTD  
ADVANCED SYSTEMS AUTO

#### SEMICONDUCTOR (MECH COMPONENTS)

UMS HOLDINGS LTD  
MICRO-MECHANICS LTD  
ADVANCED SYSTEMS AUTOMATION

#### HARD-DISK DRIVE

ARTIVISION TECHNOLOGIES LTD  
BROADWAY INDUSTRIAL LTD

#### EMS/ODM DIVERSIFIED

VENTURE CORPORATION LTD  
VALUETRONICS HOLDINGS LTD  
PNE INDUSTRIES LTD  
HUAN HSIN HOLDINGS LTD

#### PC PERIPHERALS

POWERMATIC DATA SYSTEMS  
AZTECH GROUP LTD  
BAN LEONG TECH LTD

#### SEMICONDUCTOR

ELLIPSIZ LTD  
GLOBAL TESTING CORP LTD  
SUNRIGHT LTD  
AVI-TECH ELEC. LTD  
SMARTFLEX HOLDINGS LTD

#### PRINTED CIRCUIT BOARD

CHUAN HUP HOLDINGS LTD  
ELEC & ELTEK INT CO LTD  
PCI LTD  
CEI LTD  
EUCON HOLDING LTD  
CPH LTD  
ADV INTEGRATED MFG CORP LTD  
JADASON ENTERPRISES LTD

#### TELECOM/SATELLITE

NERATELECOM LTD  
HENGXIN TECHNOLOGY LTD  
ADDVALUE TECHNOLOGIES LTD  
GLOBAL INVACOM GROUP LTD  
8TELECOM INTL HOLDINGS LTD

#### EMS/ODM MOBILE DEVICES

LONGCHEER HOLDINGS LTD  
HI-P INTERNATIONAL LTD

#### DISTRIBUTORS (MOBILE DEVICES)

TELECHOICE INTERNATIONAL LTD  
MDR LTD

#### DISTRIBUTORS (SEMICONDUCTOR)

SERIAL SYSTEM LTD  
KARIN TECHNOLOGY HLDGS LTD  
WILLAS-ARRAY ELEC (HLDGS) LTD  
EXCELPOINT TECHNOLOGY LTD

#### OTHERS

GP INDUSTRIES LTD  
DECLOUT LTD  
CDW HOLDING LTD  
IPS SECUREX HOLDINGS LTD  
PROCURRI CORPORATION LTD

## INTERNET, GAMING, IT SERVICES & SOFTWARE

### APPLICATION SOFTWARE & SERVICES

SILVERLAKE AXIS LTD  
CAPTII LIMITED  
CSE GLOBAL LTD  
THE STRATECH GROUP LTD

### IT CONSULTING

AZEUS SYSTEMS HOLDINGS LTD  
PLATO CAPITAL LTD  
NTEGRATOR INTERNATIONAL LTD

### INTERNET SOFTWARE & SERVICES

IFAST CORPORATION LTD.  
YUUZOO CORPORATION LTD

Source: SGX

Note: Classification according to sub-verticals

---

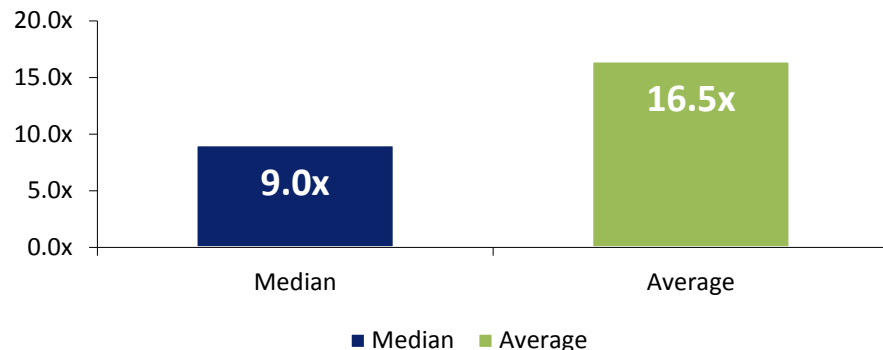
# Singapore traditionally strong in hardware manufacturing

- **Singapore's electronics manufacturing industry**
  - 5.3% of Singapore's GDP in 2013
  - 29% of Singapore's total manufacturing value-add in 2013
- **One of the largest semiconductor industry in the Asia Pacific region**
  - #2 city worldwide (behind Hsinchu, Taiwan) in terms of semiconductor fab capacity
  - Home to 15 silicon IC wafer fabs, 4 compound semiconductor wafer fabs, and 3 MEMS wafer fabs
  - Fabricates about one in 10 of the world's integrated circuits (IC) companies
- **World's largest manufacturer of hard disk media**
  - Over 40% global market share
- **Major hub for regional data centre operations in Infocomms & Consumer Electronics**
  - Hewlett-Packard (HP) manufactures high-end servers, storage and networking equipment in Singapore
  - IBM uses Singapore as a hub to build its high-end servers and mainframes
  - Regional base for many Electronics Manufacturing Services (EMS) companies (e.g. Jabil, Venture)
- **Choice location for batteries and power electronics system**
  - Energizer and Sony manufacture latest-generation lithium batteries in Singapore

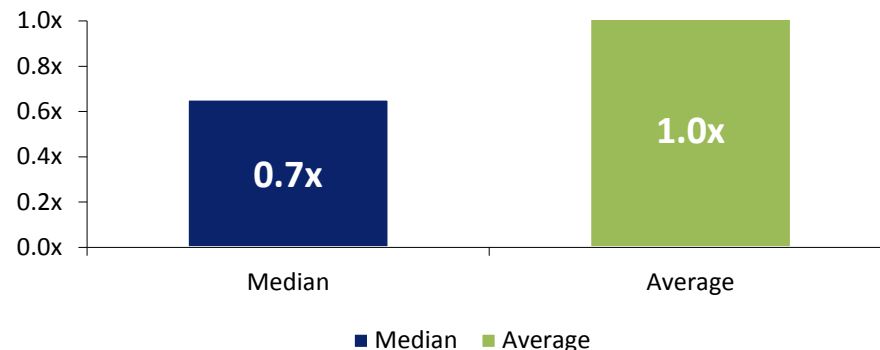
*Source: Singapore Economic Development Board, IE Singapore*

# Singapore IT stocks has attractive dividend yields of c.5%

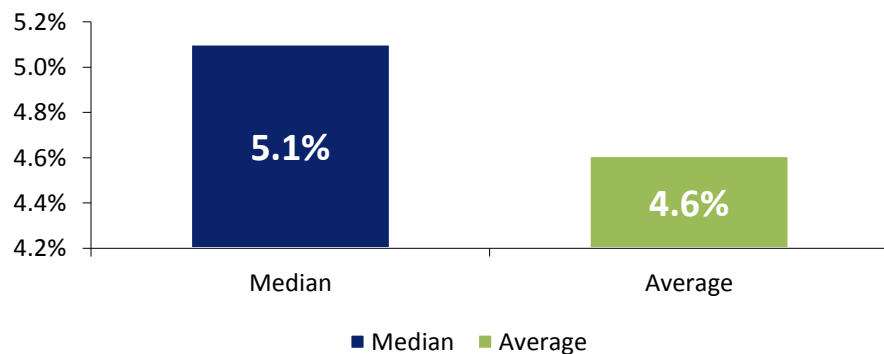
## Singapore IT stocks trailing P/E



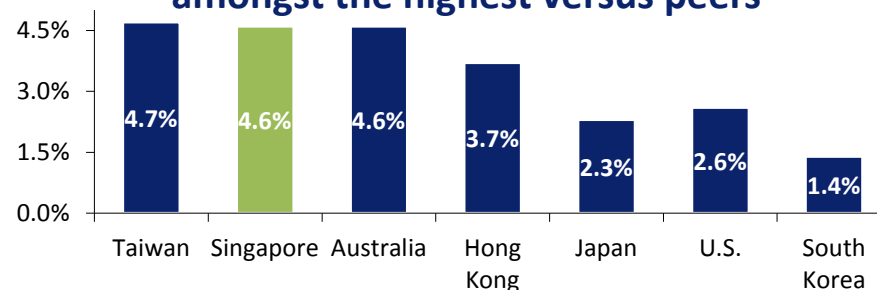
## Singapore IT stocks trailing P/B



## Singapore IT stocks dividend yield



## Singapore IT stocks dividend yield amongst the highest versus peers



Source: Bloomberg. As of 29 July 2016

# Top 10 Singapore IT stocks generate strong comparative returns with better dividend yields

- The 10 largest capitalised IT plays listed in Singapore outperformed the FTSE STI over three and five year periods
- The top 10 companies have an average dividend yield of 4.2%, higher than FTSE STI's 3.6%

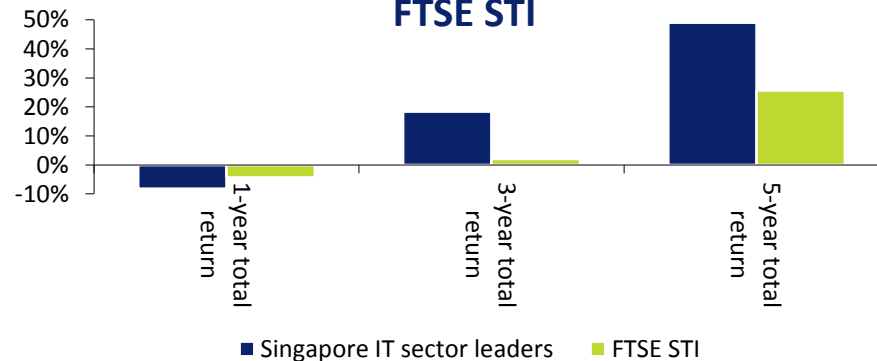
Singapore's 10 Largest IT stocks (by market cap)	SGX Code	GICS Sub-Industry name	3-year median ROE (%)
VENTURE CORPORATION LTD	V03	Electronic Manufacturing Services	7.2
SILVERLAKE AXIS LTD	5CP	Application Software	44.3
TPV TECHNOLOGY LTD*	T18	Technology Hardware, Storage & Peripherals	-1.9
HI-P INT'L LTD	H17	Electronic Components	1.1
GP INDUSTRIES LTD	G20	Electronic Equipment & Instruments	6.6
NERATELCOMMUNICATIONS LTD	N01	Communications Equipment	25.5
UMS HOLDINGS LTD	558	Semiconductor Equipment	15.5
CHUAN HUP HOLDINGS LTD	C33	Electronic Components	17.9
IFAST CORPORATION LTD**	AIY	Internet Software & Services	17.5
CSE GLOBAL LTD	544	IT Consulting & Other Services	6.4

Source: Bloomberg, SGX

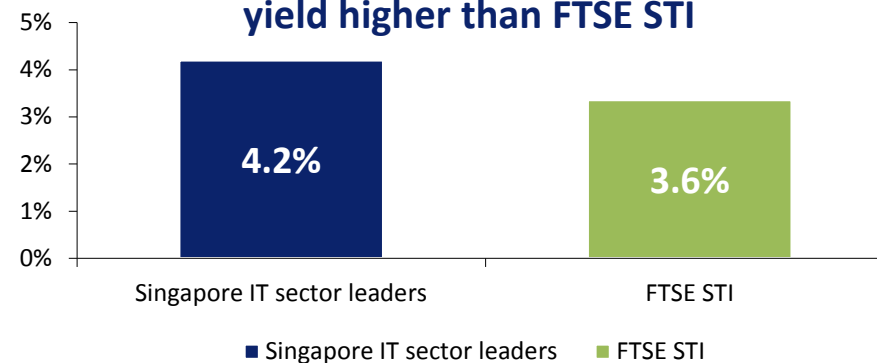
\*Secondary listing

\*\*ROE for 2013 not available (listed in 2014)

**Total returns: SG IT sector leaders versus FTSE STI**



**SG IT sector leaders average dividend yield higher than FTSE STI**



Source: Bloomberg. As of 31 July 2016

# Case studies: Cash-rich hardware manufacturing companies paying out good dividends





# Case Study: Venture Corporation (V03)

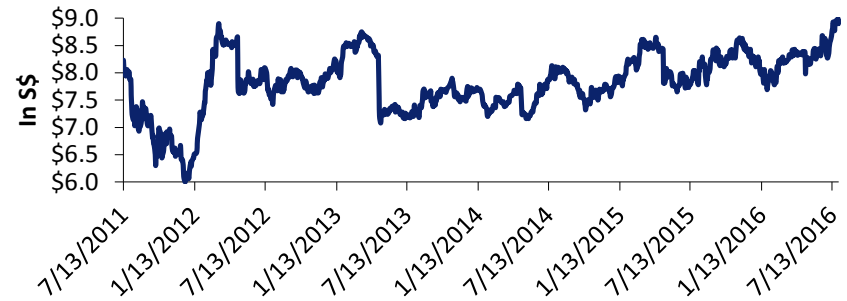
Cash-cow  
Business



- Leading global provider of technology services, products & solutions
- Product portfolio of >5,000 products and solutions with a diversified customer base
- Successful diversification into Test & Measurement/Medical/Life Science/Others (TMLO) segment

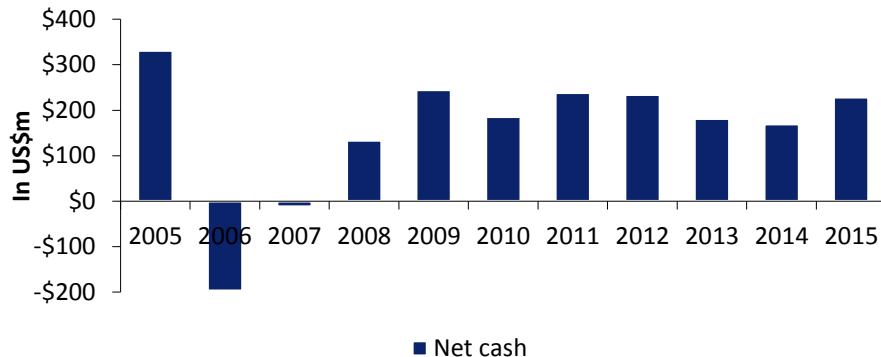
- Gaining market share with new and existing customers
- TMLO segment driving growth (revenue +14% y-o-y in 2015 and represented 60% of total company's revenue growth)
- "Cash-cow" core business helping to generate positive free cashflow for the past 10 years. Net cash position since 2008
- Paying consistent dividend of S\$0.50/share for the past 12 years

## Venture Corp's share price performance



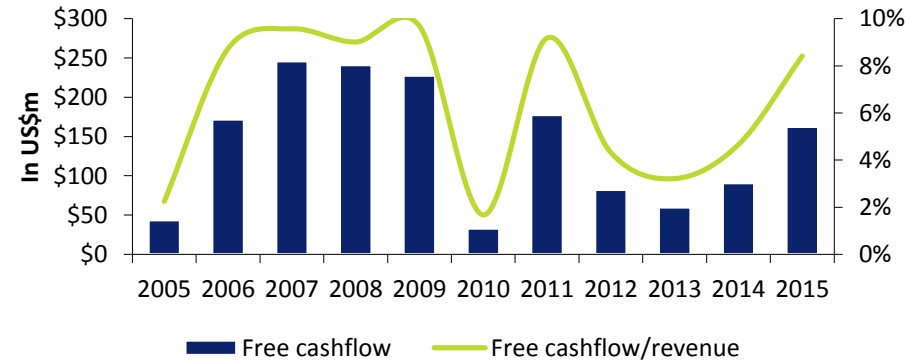
Source: Bloomberg. As of 29 July 2016

## Net cash position since 2008



Source: Bloomberg. In US\$m

## Positive free cashflow for past 10 years



Source: Bloomberg. In US\$m

# Case Study: Micro-Mechanics (5DD)

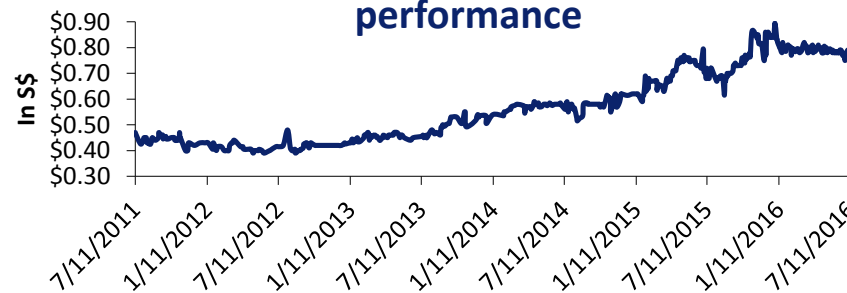
**Cash-cow  
Business**



- Leading supplier of high precision tools, parts and assemblies mainly for semiconductor industry
- Diverse customer base of 650 globally with no customer concentration risk
- Firm dividend policy of not less than 40% of consolidated net profit consistently

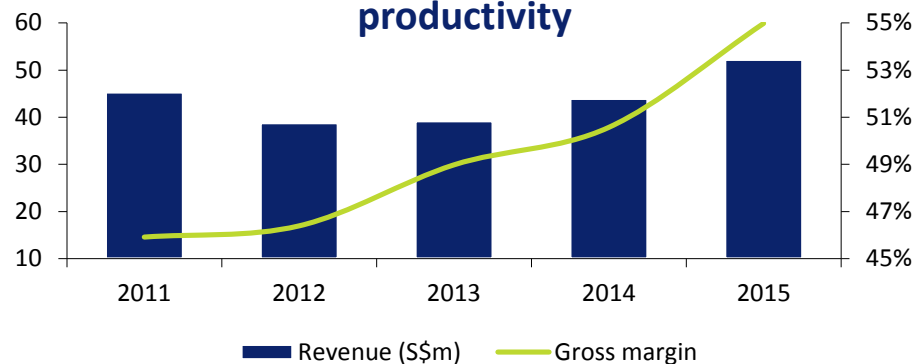
- Strong customer relationship with major semiconductor companies globally (semiconductor tools >85% of revenue)
- Steady revenue with rising gross margins thanks to increasing productivity and efficiencies
- Highly cash-generating business with positive free cashflow
- Net cash position of S\$17.0m with zero debt (as of March '16 quarter)
- Consistent dividend payout ratio of at least 40%

## Micro-Mechanics stock price performance



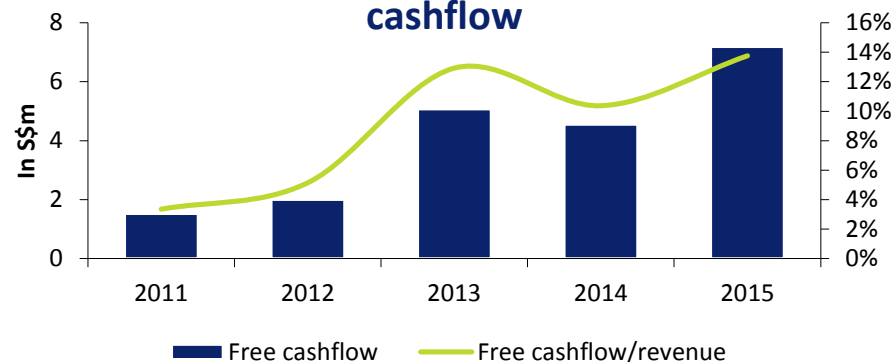
Source: Bloomberg. As of 29 July 2016

## Margins expansion on increased productivity



Source: Bloomberg

## Cash-generating business = positive free cashflow



Source: Bloomberg

**Paradigm shift into digital age presents an opportunity for Singapore**





---

# Disruptive technologies driving future growth in IT

- **Internet of Everything (IoE):** 25bn connected devices by 2015 & 50bn by 2020, creating USD14.4 trillion of value at stake for companies and industries (according to Cisco). Big data growing rapidly thanks to high speed analytics
- **Virtual Reality (VR) and Augmented Reality (AR):** Products such as Oculus Rift, PlayStation VR, Samsung Gear VR, and HTC Vive becoming mainstream as eco-system develops and content ramps
- **3D printing (additive manufacturing):** Market size projected to grow 5x from USD2.2bn in 2012 to USD10.8bn in 2021 (source: A\*STAR) driven by lower costs and demand from aerospace, defense, auto and medical industries
- **Robotics and Artificial Intelligence (AI):** Robots and AI solutions market likely to grow to USD153bn by 2020 (BAML) driven by accelerating adoption of robotics across sectors within manufacturing
- **Fintech emerging:** Digital disruption of the global banking sector. Availability of cloud computing and data analytics enabling non-FI companies to develop fintech solutions
- **Mobile payment:** Increasing adoption rate of mobile payment users as smartphones become ubiquitous. Apple and Google leading the pack

---

# Key growth areas for Singapore IT sector

- **Regional hubs for many “new economy” companies**
  - Asia-Pacific HQ located in Singapore: Facebook, Google, Netflix, Twitter
- **Smart Nation initiative**
  - IDA launching SGD2.82bn of Information & Communications Technology (ICT) tenders across FY16
  - >50% of projected expenditure on infrastructure-related projects (e.g. data centres, data storage, PCs, routers, WiFi)
  - Key focus areas: Infrastructure, IoT security and government agency systems
- **Medical-Technology (Med-Tech)**
  - >100 Med-Tech SMEs in Singapore and was SGD5.5bn in manufacturing output in 2014 (versus SGD1.5bn in 2000)
  - Biotech output already accounted for 65% of overall manufacturing output growth in 2015
- **FinTech**
  - MAS commits SGD225m (for next five years) to grow Fintech segment of startup ecosystem in Singapore
- **Increasing collaboration between large Singapore corporates and National Research Foundation (NRF)**
  - CapitaLand, DeClout, Wilmar, and YCH partnering NRF to jointly invest up to SGD85m in SG-based Tech startups
  - DBS investing SGD10m over next five years to support startup ecosystem in Singapore

Source: <http://www.channelnewsasia.com/news/business/government-to-call-for-s/2808162.html>

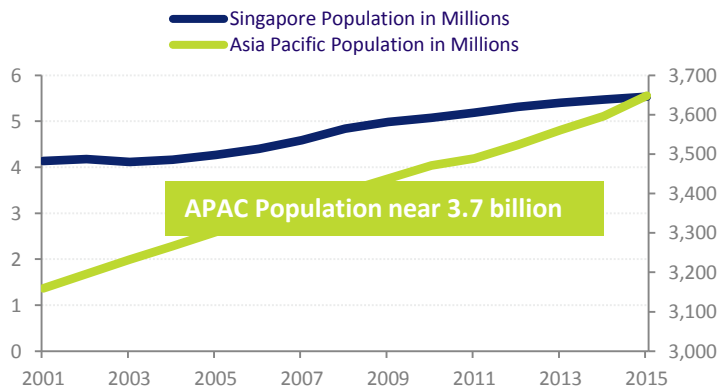
# E-commerce Driving Recent Sector Expansion

- Consumer Sectors have accounted for 25% of the World's IPO Value over past 5 years. This is based on Bloomberg estimates of S\$4.4 trillion in IPOs with Consumer Sectors accounting for S\$1.1 trillion. The largest IPO over this timeframe was Alibaba Group Holding. In Singapore, recent IPOs have also been associated with retailing.
- Regional Retailing Highlights, according to Google Temasek include:
  - The projection of 124,00 internet users coming online everyday for the next 5 years in South East Asia with 480 million users by 2020.
  - Expectations that the internet economy in South East Asia may reach \$200 billion by 2025 with ecommerce and Travel making up >90% total online spend.
  - Unique regional growth drivers are 70% of South East Asia's population is below the age of 40, retail stores per capita is 1/4rd of same ratio in United States and GDP growth of 5.3% over the next 10 years generates a rapidly growing middle class.



## Other Traditional Drivers

Singapore consumer spending reached an all time of S\$35 bn in 4Q15



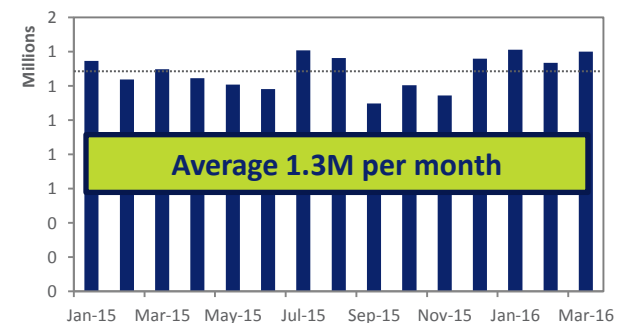
Singapore Population up a third since 2001.

Asia Pacific has Regional Consumers at all Income levels, Consumer Behaviour and Preferences change rapidly with Demographics. Between 2008 and 2013, growth in Singapore discretionary spending significantly outpaced that of essentials, with real expenditure on discretionary services surging by 61%\* Source: MAS click [here](#)

Median Gross Monthly Income incl. CPF From Work Of Employed Residents



TRAVEL Hub - Singapore International Visitor Arrivals

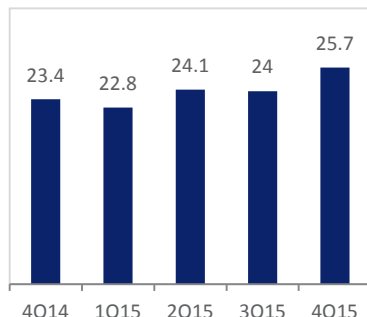


## Impact of E-commerce

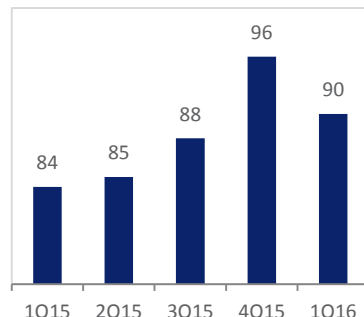
# Case Study: Challenger Technologies

- Challenger Technologies operates the Challenger chain of IT retail stores and online tech marketplace Hachi.tech.
- Challenger's vision is to becoming a large online and offline player.

ROE (%)

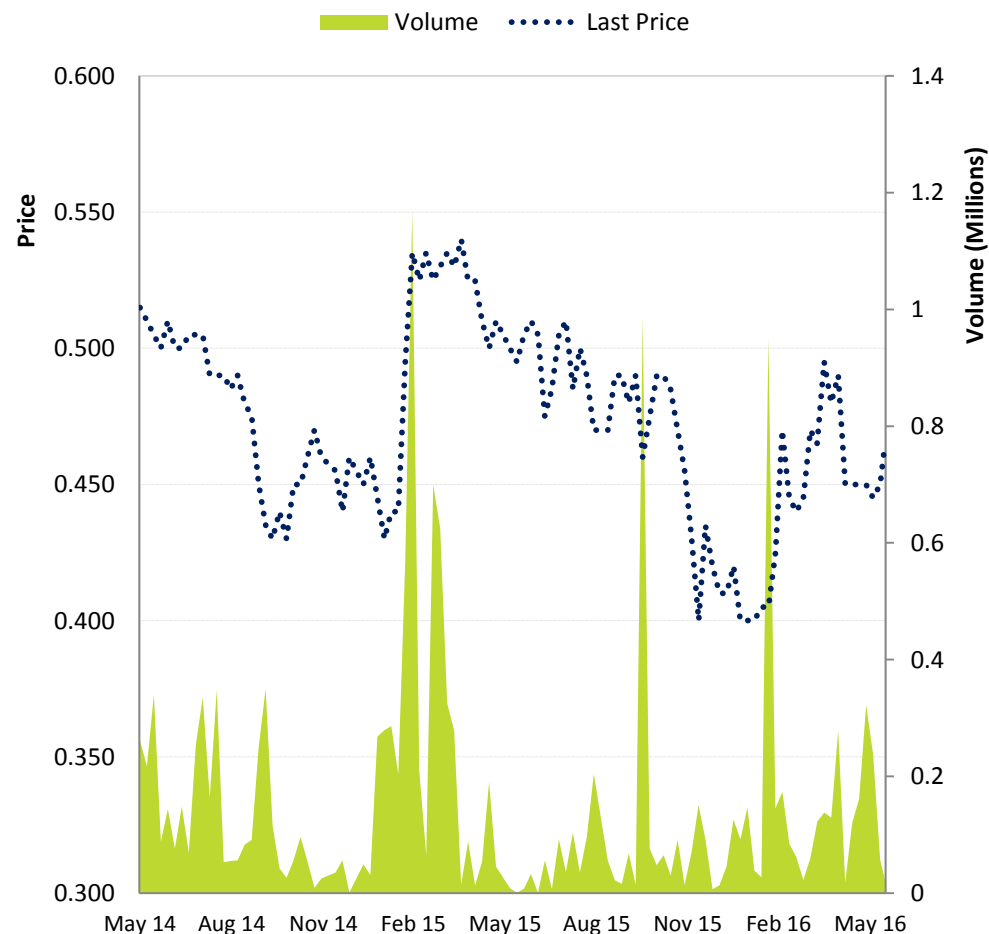


Revenue (\$M)



**1Q16 Report - Revenue grew 8% despite soft retail conditions**

“Online shopping is an additional and important growth engine for us. Hachi.tech will house many times more products than our physical retail stores, giving our customers more choice and convenience.”



Source: Bloomberg

# Supportive eco-system to position for disruptive technologies

## Supportive government agencies



**NATIONAL  
RESEARCH  
FOUNDATION**



**iDA  
SINGAPORE**

## SGX & Clearbridge collaboration



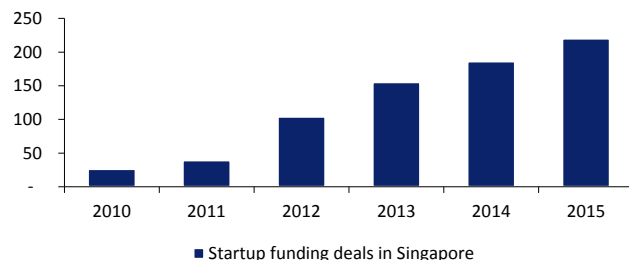
SGX partners CBA to facilitate fund raising for entrepreneurs and SME

## Singapore #10 best startup ecosystem globally (Compass)

### The Global Startup Ecosystem Ranking



## Startup funding deals in Singapore rising



Source: Technasia.com

## BLK71: Singapore's startup hub set up in 2011



## Quick snapshot of some of the funding initiatives for startups in Singapore offered by various government agencies

### Government-aided equity financing schemes

- SPRING Startup Enterprise Development Scheme (SPRING SEEDS)
- Business Angels Scheme (BAS)
- Early-Stage Venture Funding

### Cash grants

- ACE Start-ups Scheme
- Technology Enterprise Commercialization Scheme (TECS)
- iSTART-ACE Scheme
- iSPRINT
- ComCare Enterprise Fund (CEF)

### Business incubator schemes

- NRF Technology Incubation Scheme
- Incubator Development Program
- Incubator for Disruptive Enterprise & Start-ups (IDEAS) fund
- Fast-Track Environmental & Water Technologies Incubator Scheme (Fast-Tech)

### Debt financing schemes

- Micro-Loan Program
- Loan Insurance Scheme (LIS)
- Local Enterprise Finance Scheme (LEFS)

### Tax incentive schemes

- Tax Exemption for Start-ups
- Development & Expansion Incentive (DEI)
- Investment allowance
- Pioneer Incentive Scheme
- Productivity & Innovation Credit (PIC) Scheme
- Industry-specific tax incentives

# Summary

## Diverse and global

IT sector is diverse with strong linkages across Technology companies within the global electronics supply chain



## Strong comparative returns

Singapore IT sector leaders generate strong comparative returns historically versus the FTSE STI Index



## Minting cash

Singapore's traditional technology manufacturing companies are *cash cows* (generating strong cashflow), paying out consistent dividends with high yields.



## Lines are blurring

Disruptive technologies *blurring the lines* between sectors. Companies at risk forced to adapt and innovate in order not to be left behind



## Singapore well-positioned

Singapore has a supportive eco-system to support upcoming key growth areas for the IT sector domestically

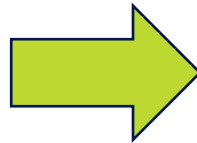


# Appendix

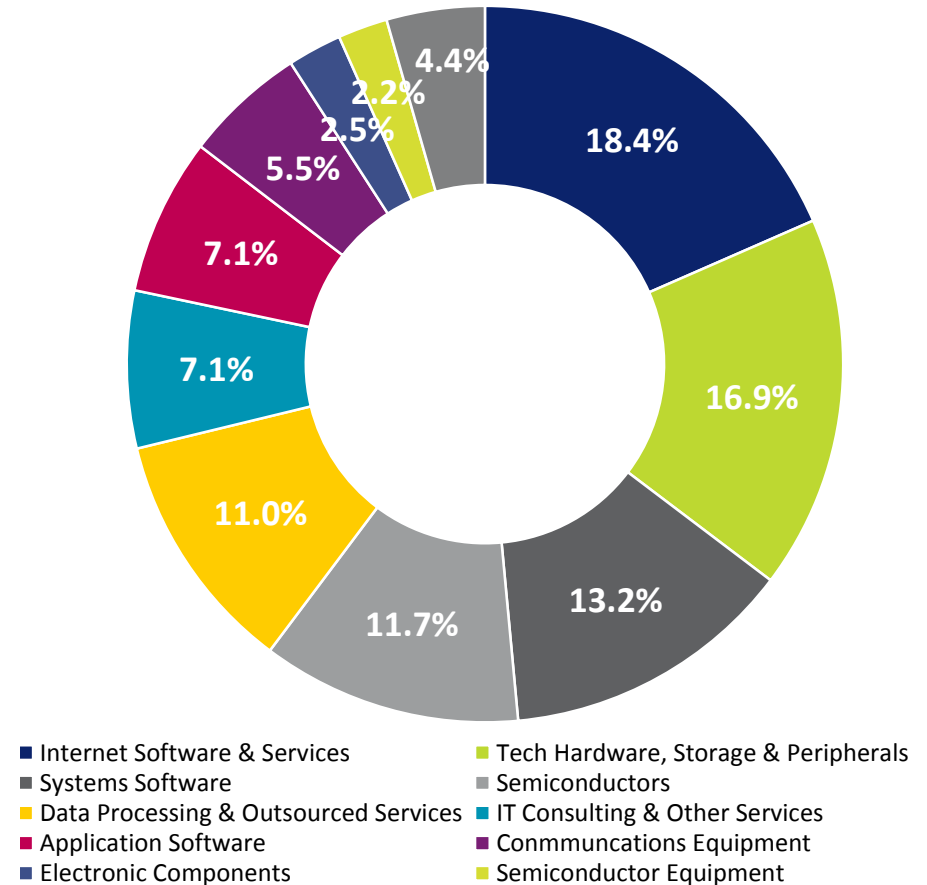


# IT sector is very broad as shown by GICS® and index

Industry Group
451. Software & Services
452. Technology Hardware & Equipment
453. Semiconductors & Semiconductor Equipment
Industry Name
451010. Internet Software & Services
451020. IT Services
451030. Software
452010. Communications Equipment
452020. Technology Hardware, Storage & Peripherals
452030. Electronic Equipment, Instruments & Components
453010. Semiconductors & Semiconductor Equipment
Sub-industry Name
45101010. Internet Software & Services
45102010. IT Consulting & Other Services
45102020. Data Processing & Outsourced Services
45103010. Application Software
45103020. Systems Software
45103030. Home Entertainment Software
45201020. Communications Equipment
45202030. Technology Hardware, Storage & Peripherals
45203010. Electronic Equipment & Instruments
45203015. Electronic Components
45203020. Electronic Manufacturing Services
45203030. Technology Distributors
45301010. Semiconductor Equipment
45301020. Semiconductors



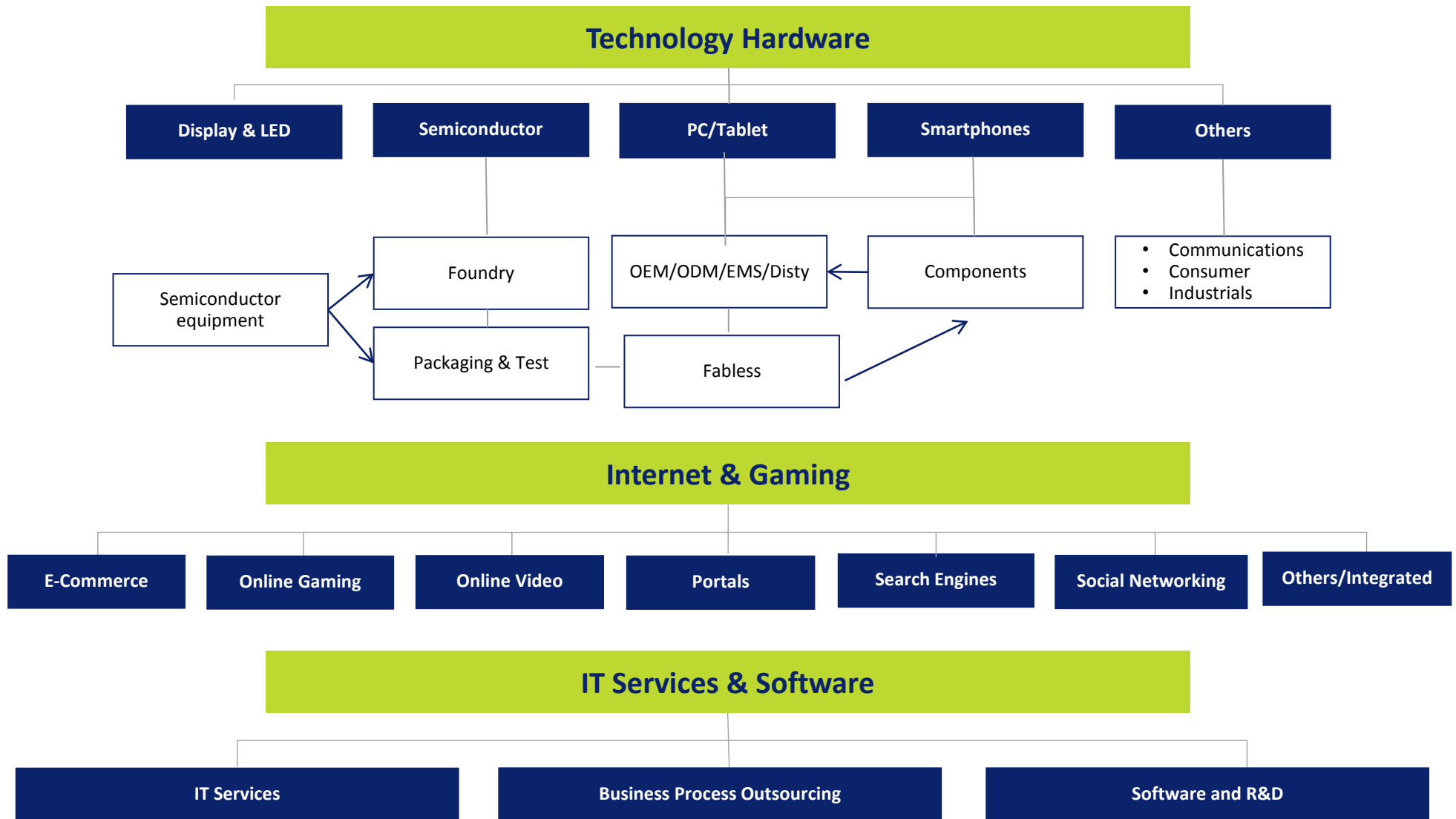
MSCI IT Index weight



Source: MSCI



# IT Industry eco-system / supply chain



Source: SGX

# Key stock drivers

## Technology Hardware



### Average selling price (ASP)

- Relevant for both upstream and downstream. ASPs typically higher for new products before trending downwards
- Need for innovation to maintain or increase ASPs

### Capacity and utilization

- More for upstream companies
- Higher capacity = more orders, tighter capacity = supply shortage
- High utilization rates will have positive impact to margins

### Capital intensity and depreciation

- Asset-heavy Technology companies have high capital intensity
- Higher capex = higher depreciation and negative to margins

### End demand

- End demand for consumer electronics most important
- Governs the state of the entire global electronics supply chain

### Inventory

- Rising inventory levels = poor demand
- Overly lean inventory leaves = inability to deliver increased orders

### Margins

- Upstream margins typically higher than downstream
- Pricing power, innovation governs margins

### Product cycles

- New product cycles help drive the electronics supply chain, stimulating consumer end demand

# Key stock drivers (cont'd)

## Internet & Gaming



### Average revenue per user (ARPU)

- Measure of how much revenue generated given the customer base
- Increasing ARPU over time suggests customer base willing to pay higher price for company's products

### Cost per click (CPC)

- Internet advertising model used to direct traffic to websites
- Advertiser typically pays publisher when the ad is click
- Most commonly associated with Internet search engines

### Daily/Monthly average users (DAU/MAU)

- Measured by counting number of unique users in a specific period
- Used to gauge success rate of online gaming and social networking services

### Gross merchandise volume (GMV)

- Indicates total revenue dollar value for merchandise sold through a specific marketplace over a certain time period
- Mostly used for online retailers in the E-Commerce space

### Traffic acquisition costs (TAC)

- Critical cost of revenue for Internet search engines
- Rising/Falling TAC = Negative/positive for profitability

# Key stock drivers (cont'd)

## IT services & Software



### Customer attrition/churn rate

- Key business metrics for software companies
- Measures the rate of customers loss. Typically expressed in gross or net

### Customer lifetime value (CLTV)

- Estimate of the net profit attributed to entire future relationship with a customer
- Focus is on the long-term health of customer relationship

### Installed base

- Measures number of active units on a particular system
- Indication of a platform's popularity

### Subscription growth rates

- Indicates the growth rates of subscription, mostly for software companies

### Recurring revenue

- Mainly used for subscription businesses
- Measures the portion of revenue highly likely to continue in the future

### Revenue per employee

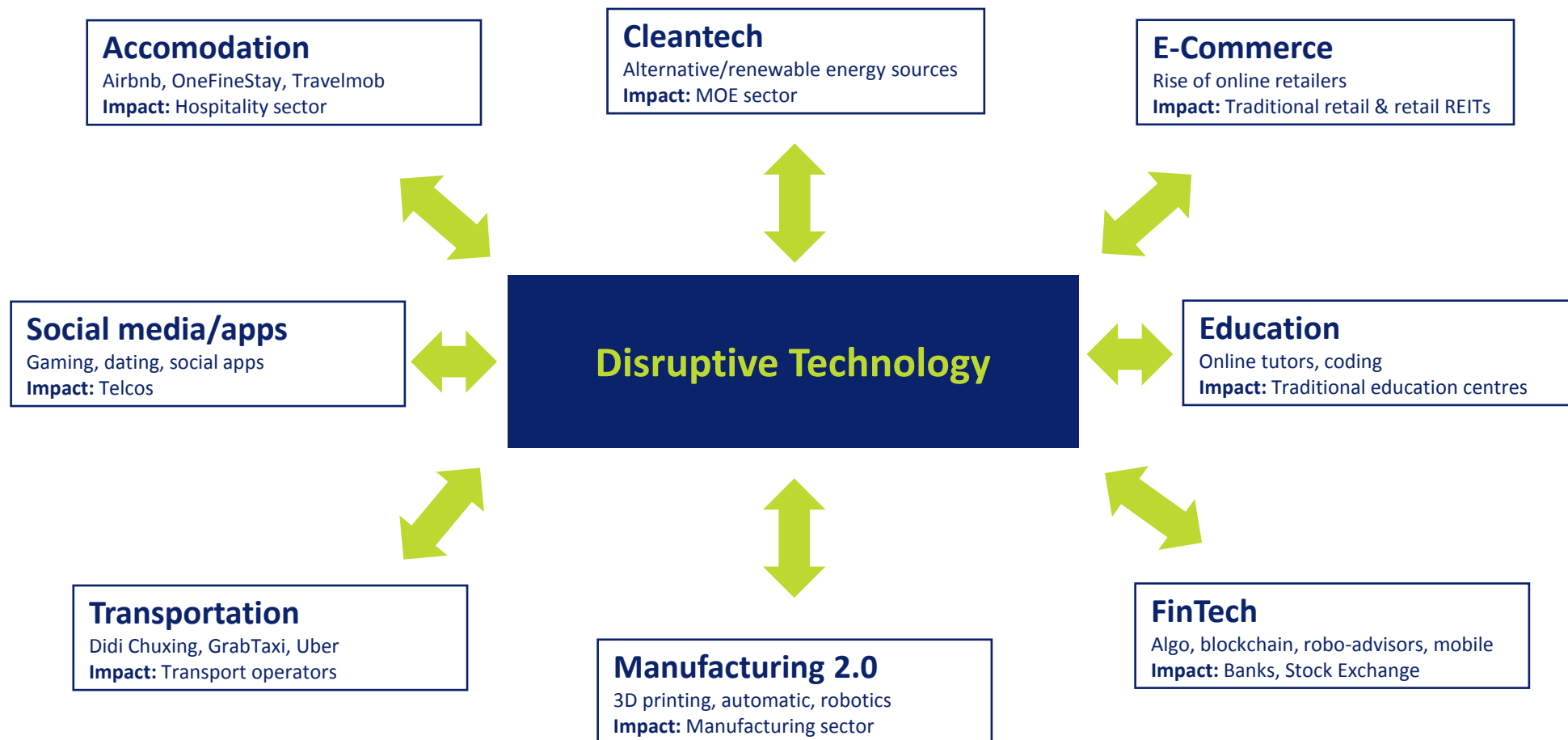
- Indicates how efficient a company is at generating revenue given their total headcount
- Typically used for IT services companies

# Rise of startups...

- Three Singapore-based startups are *Unicorns* (startups valued at USD1bn and above)

Country	Company	Industry	Valuation (USDbn)
U.S.	Uber	On-demand	62.5
China	Xiaomi	Technology hardware	46.0
China	Didi Chuxing	On-demand	28.0
U.S.	Airbnb	e-Commerce/Marketplace	25.5
U.S.	Palantir	Big data	20.0
China	Lufax	Fintech	18.5
China	China Internet Plus	e-Commerce/Marketplace	18.0
U.S.	Snapchat	Social media	16.0
U.S.	WeWork	Facilities	16.0
India	Flipkart	e-Commerce/Marketplace	15.0
U.S.	SpaceX	Others	12.0
U.S.	Pinterest	Social media	11.0
U.S.	Dropbox	Internet, software & services	10.0
China	DJI Innovations	Technology hardware	10.0
U.S.	Theranos	Healthcare	9.0
Sweden	Spotify	Internet, software & services	8.5
China	Zhong An Insurance	Fintech	8.0
India	Snapdeal	e-Commerce/Marketplace	6.5
China	Lianjia	e-Commerce/Marketplace	6.2
U.S.	Lyft	On-demand	5.6
Singapore	Garena	Mobile software & services	3.8
Singapore	GrabTaxi	On-demand	1.5
Singapore	InMobi	Adtech	1.0

# Disruptive Technology impact on Singapore Inc.



# Thank you

**Singapore Exchange**

Beijing ▪ Hong Kong ▪ London ▪ Mumbai ▪ Tokyo

**sgx.com**

This presentation is not intended for distribution to, or for use by or to be acted on by any person or entity located in any jurisdiction where such distribution, use or action would be contrary to applicable laws or regulations or would subject SGX to any registration or licensing requirement. This presentation is not an offer or solicitation to buy or sell, nor financial advice or recommendation for any investment product. This presentation is published for general circulation only. It does not address the specific investment objectives, financial situation or particular needs of any person. Advice should be sought from a financial adviser regarding the suitability of any investment product before investing or adopting any investment strategies. Further information on this investment product may be obtained from [www.sgx.com](http://www.sgx.com). Investment products are subject to significant investment risks, including the possible loss of the principal amount invested. Past performance of investment products is not indicative of their future performance. Examples provided are for illustrative purposes only. While SGX and its affiliates have taken reasonable care to ensure the accuracy and completeness of the information provided, they will not be liable for any loss or damage of any kind (whether direct, indirect or consequential losses or other economic loss of any kind) suffered due to any omission, error, inaccuracy, incompleteness, or otherwise, any reliance on such information. Neither SGX nor any of its affiliates shall be liable for the content of information provided by third parties. SGX and its affiliates may deal in investment products in the usual course of their business, and may be on the opposite side of any trades. SGX is an exempt financial adviser under the Financial Advisers Act (Cap. 110) of Singapore.

The information in this presentation is subject to change without notice.