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1. Market Momentum

The Asian startup ecosystem is characterized by movements that are unique to today and may never come to pass again:  

- Regional funding is increasing steadily and stabilizing as Asian and non-Asian investors are wiser and keener on the continent.
- Various startup ecosystems across the region are maturing at different speeds (especially seen in steady government support of local startup ecosystems and the rising number of investments per country).
- Large active regional tech companies reaching across multiple countries for new markets
- Silicon Valley unicorns investing heavily into taking various local markets, competing with local startups from playing for these markets
- Local startup ecosystems are still largely undeveloped. Funding less aggressive as in the Valley, mentorship is still scarce, talent still immature.
- Regional threats for tech startups across Asia from Chinese and American companies aggressively targeting the region
- The days of cloning are over because the pioneers of the models are going global faster than it is possible to clone and implement.

Regional players: GrabTaxi, Malaysia. Going regional allowed GrabTaxi to raise money, hire a strong international grassroots team and effectively squash all local taxi apps.

Global players: global players like Facebook and Uber have the product, technology, and investment to dominate even the bigger players

Chinese players: Chinese companies (Baidu, Alibaba, Tencent, Didi Kuadi, and Xiaomi) operate with unique strategies and can afford to sit on their local market for extended periods of time before even considering Southeast Asia, India, or other outside markets, are both threats and friendlies.

A local startup with fewer resources, fresher talent, and less investment cannot compete against foreign companies who are becoming wiser to local strategies along with their longer run-rates and marketing budgets.

Startup sizes and completion

Dinosaurs vs. mammals vs. unicorns

The mechanics of how these three types of players throw their weight around the continental ecosystem is troubling for smaller companies. In Asia, this will be ever-present due to incumbent companies unable to adapt. The result is this:

1. Startups are unable to clone because the models they are cloning are going global much faster than they can anticipate. This means that the advice of “take a solution from elsewhere and localize it to your market” will be less and less relevant as speedy well-funded tech companies

1 https://www.techinasia.com/go-big-or-die/
are able to localize faster than locals. Formerly dominant local players struggle in the face of internationals with robust localized strategies.

2. Incumbent tech-related companies cannot handle replacement competitors. These are competitors that do not appear to be so at first, but on hindsight, actually take away your exact customer base and expand it. Although news organizations don’t perceive Facebook as an immediate threat, in the long-term and from a user point of view, Facebook takes their attention away, and thus ad dollars. Asia is under threat with this primarily because the local incumbents are slow to adapt to the software that is eating their world.

3. Since ecosystems and therefore the startups are still nascent, it takes considerable fortitude to evolve. It’s hard for smaller ecosystems to raise funding and build great teams, especially for the very small ecosystems like Myanmar, Cambodia, and Laos, which are so small it’s difficult to produce startups in the first place.

4. Rocket Internet, Uber, Airbnb, Google, Facebook, and more are all pulling in foreigners interested in the exotic and compelling opportunities in Asia. These companies are also training up locals in domain expertise in startup launching, online strategy, product development, and more.

5. Many startups today – especially from Southeast Asia are satisfied with a few millions or tens of millions in revenue per year. They don’t realize that the giants are after them.

The silver lining: Asian investment is hot

Asia is experiencing a new flourishing of M&A and investment maturity that was unprecedented up until recently. Prime examples of this are Tencent and SoftBank. Tencent in the last five years has invested in major properties across the region including Singapore’s Garena, Vietnam’s VNG, and Thailand’s Sanook. It sits in the background, offering corporate and strategic support while observing the region surrounding China.

SoftBank, by contrast, is investing heavily across the continental ecosystem. From Alibaba to Ola to Did Kuadi to GrabTaxi to Tech In Asia, SoftBank operates more as an investor than a corporate investor. The money is rippling across the ecosystem at all stages from venture capitalists to corporate development. For startups that are indeed going big (series A and above), the money is waiting.

Even the smallest startups need to be aware of the looming threats ready to destroy your meek and short-sighted business model. At the same time, the possibility for investment from a firm 5,000 kilometres away is real.

Tech bubble

Global mobile commerce is soaring past US$2 billion largely as a result of popular mobile devices. As patterns for Internet services and products evolve, the Asia-Pacific is set to become the world's largest online shopping market.

The current mobile and digital advertising market in Asia has slowly risen and its fortune has been estimated to exceed $7 billion by 2019. An analytics study conducted by market researcher, Frost and Sullivan, are determined that Southeast Asia will continue to flourish at a compound annual growth rate of 48 percent from 2015 to 2019, after it hit $1 billion in 2014. The rapid growth has
proven that digital in Southeast Asia will continue to grow much faster than the other mature regions in the world.  

Digital disruption is happening very fast in China and India, even though they do not have any preconceived legacy ideas on what cannot be done with technology. If China is going through its tech bubble, India sets to be the next tech bubble in Asia.

**FinTech bubble**

Fintech is the fastest growing venture capital industry and the volume of investments in the industry has more than tripled. Markets in Southeast Asia are starting to gain momentum as fintech companies hit unbanked populations that have not been touched by traditional banking before.

Areas, such as insurance, market provisioning, investment management, and capital raising are also making a significant disturbance in finance, data analytics is another hot area, catching the attention of big banks

Startups are exploring P2P, crowd sourcing, cryptocurrencies, and payments innovations. A large number of entities offering solutions with small individual impacts around the edges of markets, there are entities delivering a product solution, potentially either for a gap in the system or a better solution (P2P lending is an example).

However, there is a lack of minimum standards of due diligence or disclosure; the reporting requirements on borrowing businesses may be lower than for listed companies

- Investor are over optimistic
- Technology security risks receive less attention than from standard banking institution
- There is a lack of regulatory experience

There is plenty of attention from the government, venture or institutional investors:

The Monetary Authority of Singapore (MAS) set up FinTech & Innovation Group. MAS has committed S$225 million ($166.48 million) over the next five years, to growing the fintech segment of the startup ecosystem in Singapore as a part of the Financial Sector Technology & Innovation (FSTI) scheme. Financial backing through FSTI is intended to drive a fintech ecosystem, in addition to building the technology skills among the country’s workforce, he said.

The MAS funds will be used to incentivise banks to establish R&D and innovation labs, as well as other infrastructure, in the city-state. Metlife and UBS are among a number of institutions that have applied for funds under the FSTI.

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2 [https://www.techinasia.com/talk/mysterious-big-w-asia/](https://www.techinasia.com/talk/mysterious-big-w-asia/)
3 [http://fintechranking.com/2015/06/30/formation-8-raising-us400m-late-stage-fund-for-asia/](http://fintechranking.com/2015/06/30/formation-8-raising-us400m-late-stage-fund-for-asia/)
Startupbootcamp, a vertical-focused startup accelerator founded in 2010 in Copehagen, Denmark, has entered Asia. The Singapore government has invested in it through Infocomm Investments. Partners for the Singapore bootcamp include DBS bank, MasterCard, Route 66 Ventures, SBT Venture Capital, and the Monetary Authority of Singapore, the country’s central bank.

Moscow-based venture capital firm Life.SREDA, moved its corporate headquarters to Singapore. It is rumoured that a second vehicle – Life.SREDA II – with a target of up to $100 million, is being raised to tap opportunities in the region.

California-based venture capital firm Formation 8, filed at the Securities & Exchange Commission to raise a US$400 million fund for late-stage investments in Asia.5

Note: Innovate Finance, the independent membership association for the global FinTech sector, has launched its new manifesto: UK FinTech 2020. The manifesto sets out ambitious goals for the UK to be the undisputed centre for financial services technology and innovation.6

Ecosystem Champions

Singapore is #10 of the world’s top 20 startup ecosystems7

Startup data benchmarking company Compass has released its second Startup Ecosystem Report. In the three years since the previous report, New York City (where TNW has a conference coming up!) has overtaken Tel Aviv in the rankings to become the second most significant startup ecosystem in the world, behind (of course) Silicon Valley.

5 http://www.sec.gov/Archives/edgar/data/1640249/000164024915000001/xslFormDX01/primary_doc.xml
Austin, Bangalore, Singapore, and Chicago all saw gains in the new ranking table, while Vancouver, Toronto, Sydney, Tel Aviv and Seattle fell. Santiago, Melbourne and Waterloo, meanwhile, dropped out of the top 20 completely.

Ecosystems were ranked by performance, funding, talent, market reach, and ‘startup experience’ (which Compass describes as “first-party survey data that is linked to success of startups, such as having veteran startup mentors or founders with previous startup experience”).

The report finds that ecosystems are more interconnected than you may assume. International second offices are on the rise, and on average, 29 percent of employees across the top 20 ecosystems are foreign. Meanwhile, 37 percent of all funding rounds in the top 20 ecosystems have at least one investor from another ecosystem and 27 percent of funding rounds involve at least one foreign investor.

**Singapore ascending**

Singapore is counted among the ecosystems that made the biggest leaps from the 2012 report to this current one, climbing up seven ranks in the ladder. The city-state gets above average marks on startup experience, funding, and market reach, and slightly lower marks on performance.
However, according to the rankings, talent is both hard to find and hard to maintain in Singapore. To derive that conclusion, the report looked at factors such as availability and quality of talent, proportion of talent with prior startup experience, ease of acquiring overseas talent, and cost.

Still, Singapore’s leap up to 10th place might be a cause for celebration. It’s a little unclear whether the ascent is due to real evolution of the ecosystem or whether it is simply based on more accurate data than the 2012 report.

Total venture capital investment across the top 20 ecosystems rose 95 percent from 2013 to 2014. Berlin is a leader here, with VC growing 12-fold. Bangalore showed 4x growth. Bangalore was also the ecosystem with the most growth in seed funding rounds with 53 percent, followed by Sydney and Austin (33 and 30 percent respectively).

All 20 ecosystems show growth in the total number of startups during the past two years, with an average growth of nine percent in the number of seed-funded startups across the top territories.

**Trends**

**Southeast Asia today mirrors China of 2005 and India of 2010**

Golden Gate Ventures has released its first research report comparing investment trends in Southeast Asia to those of China and India. ‘The Bamboo report’ finds that investment climate in Southeast Asia mirrors that of China and India in 2005 and 2010 respectively and predicts that the region will be a key foreign investment destination in 2016.

Southeast Asian Nations (ASEAN) Economic Community (AEC)

By the end of the year, the whole Southeast Asian region will integrate under the Association of AEC, the region will be considered a single market with a single production base, with the result that it will have enhanced infrastructure and freer movement of goods, services, skilled labour and capital.

AEC aims to tap the diversity of the region by combining the capital and technology of advanced nations such as Singapore, with the sheer growth of Indonesia (71 per cent year-on-year growth in B2C e-commerce in 2014), and the labour and resources of developing nations such as Myanmar.

This shift to a more integrated regional economy will elevate Southeast Asia’s position as a lucrative investment hub and allow it to emerge as a third pillar of growth in Asia, after its predecessors China and India.

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8 Note: China became the region’s first pillar of Internet startup growth in 2005, when regulations were lifted that prevented privately-owned companies from entering a number of economic sectors, accelerating the growth of its private sector.

India, the second-fastest growing economy in the world, became the second pillar in 2010, when its economy rebounded after the Global Financial Crisis, thanks to a booming middle class.


10 http://www.asean.org/communities/asean-economic-community
Aggregated Series A investments in Southeast Asian internet startups almost tripled in the past five years: from $29 million in 2010 to $87 million in 2014. The bulk of the money went to Singapore, where 10 startups together raised $60 million in 2014. Defining a Series A investment as between $1 million and $10 million, Singapore-based Golden Gate Ventures (GGV) compiled the figures from CrunchBase and Prequin Venture Ltd. databases. Outside of Singapore, only nine other Southeast Asian companies won Series A investments last year.

Aggregate Series A investments in Southeast Asia in 2015 are expected to be approximately US$85 million, which is similar to those of India in 2010 and China in 2005, the report said.12

Launched in 2012, Golden Gates’ $10 million first fund has made early stage investments in 20 companies. They include Carousell, Singapore’s strictly mobile C2C marketplace, which raised $6 million for expansion last November. Golden Gate Ventures with Singapore sovereign wealth fund Temasek on the July 29th announced $50M Fund for Southeast Asia - Golden Gate Ventures Fund II LP13

In the last half decade, over US$1.7 billion has been invested in startups in the region. Since the beginning of the year, there have been over 20 acquisitions in Southeast Asia, many by corporates from other geographies such as Korea’s Yello Digital Marketing (YDM) and Germany’s Rocket Internet each acquiring multiple young startups.

**Contributing Factors**

**Other factors contributing to the region’s attractiveness as an investment hub**

There are nearly 1.5 billion Internet users within Southeast Asia and the number continues to rise.

China’s is overpriced and starting to cool down. Earlier this month, the Chinese Securities Regulatory Commission went so far as to put a moratorium on tech IPOs, an action that has since stunted as many as 28 IPOs. Meanwhile Southeast Asia has explosive growth in development and investment at much lower valuations

Factors include:

- Growth in entrepreneurship
- US-educated engineers returning to the region to start companies
- Influx of smart money in the region

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The region’s large market size
- Emerging middle class
- High Internet penetration.
- Governmental support

The Singapore government committed US$12.6 billion from 2011 to 2015 for scientific research and development. In 2015 alone, the Malaysian government committed US$500 million for research, innovation and investment.

This has had a spillover effect into the rest of the region, where companies expand into neighboring countries such as the recent acquisition by LVMH of Luxola in Singapore, initially co-funded by Singapore’s National Research Foundation (NRF), and GrabTaxi in Malaysia, initially funded by a grant from Malaysia’s Ministry of Finance agency Cradle.

2. Development and Innovations

1.1. Singapore

Much of the privately raised venture capital is matched with government funding, helping Singapore trump most of its peers outside the giants of China and India in terms of overall investment.

Singapore’s $324m last year was nearly 10 times Hong Kong’s $37m, according to Asian Venture Capital Journal. That is still far behind China, which saw $5.5bn in investments in the first half of this year, and India with $3.3bn.

Singapore itself already boasts 55,000 start-ups that are employing workers.

Venture capital investment

<table>
<thead>
<tr>
<th>Country</th>
<th>2014</th>
<th>2015 YTD</th>
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<tbody>
<tr>
<td>Australia</td>
<td></td>
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<tr>
<td>Hong Kong</td>
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<td>Singapore</td>
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Source: Asian Venture Capital Journal

Earlier criticisms of wanton capital allocation, when anyone who put their hand out received a cheque, are no longer valid — a strict selection procedure ensures that only the best are awarded the
coveted funding and mentoring available at BASH. The idea is that private-sector capital, which is plentiful at start-up level, will fill the gap.\textsuperscript{14}

Block 71 in downtown Singapore, home to more than 100 start-ups, accelerators and angel investors and, together with Blocks 73 and 79, among the densest technology ecosystems in the world. The tiny country is well placed to develop its aim of becoming an Asian version of Silicon Valley. While China and India attract more dollars, Singapore offers a strong legal system and minimal red tape — a business can be set up online in 15 minutes — making it a logical base from which to access bigger regional markets that lack these advantages.

While it is easy to check into Singapore’s ecosystem, there are not so many exits. Unlike Hong Kong, Singapore’s initial public offerings market is sluggish and there are few big Alibaba-, Google- or Facebook-style companies ready to snap up the next big thing.

One of the quoted reasons is the lack of fund managers who understand start-ups and the lack of multinationals that are building their own accelerators and corporate venture capital arms to create an environment conducive to M&A.

\textbf{Singascape V2.0: Everything You Want to Know about Singapore’s Startup Scene\textsuperscript{15}}

\textsuperscript{14} \textit{Singapore ramps up efforts to achieve digital ambitions - FT.com}

\textsuperscript{15} \textit{http://www.singascape.org/singascape/2015/5/25/singascape}
An estimated total of US$604.6 million in venture capital across 74 funding rounds in Singapore was raised by 62 startups in 2014. These startups are from the mobile, Internet and software sectors (excludes biotech, cleantech, semiconductor, etc.).

A total of $604.6m was raised in 2014, the majority (around 82%) came from the top five companies which raised a whopping $495.8m. The top five companies in terms of funding raised are:

1. **Grabtaxi**, Southeast Asia's leading taxi booking app raised $340m over 4 rounds: Series A ($10m), B ($15m), C ($65m) & D ($250m)
2. **iCarsClub**, Singapore's largest peer-to-peer car sharing marketplace raised $70m over 2 rounds: Series A ($10m) & B ($60m)
3. **RedMart**, Singapore's leading online grocer raised $28.4m over 2 rounds: Bridge ($5.4m) & Series B ($23m)
4. **MyRepublic**, Singapore's 4th Telco and Internet Service Provider raised $28.4m over 2 rounds: $4.4m in May & $24m in July
5. **AdNear**: Location-based mobile advertising company founded in Bangalore but headquartered in Singapore, raised $19m in Series B
In 2014, 62 (85 per cent) of the 74 funding rounds were for Seed to Series B companies. Early-stage investors under the NRF-TIS programme\(^\text{16}\) continue to be active in backing budding entrepreneurs across Seed to Series B.

Some of these early-stage investors have also received backing by the National Research Foundation (NRF) under the Early Stage Venture Fund (ESVF)\(^\text{17}\).

There is a few recently started Accelerators, Fintech looks to be a key trend among these\(^\text{18}\)

- **Startupbootcamp Fintech**: An award-winning accelerator from Europe
- **Muru-D**: A Telstra-backed accelerator from Australia
- **InspirAsia Accelerator**: By Moscow-based VC firm Life.SREDA
- **SPH Plug & Play**: A joint programme between Singapore Press Holding, Silicon Valley’s Plug & Play and Infoomm Investments
- **The Co-Foundry**: An accelerator founded by a group of industry veterans
- **Unframed**: Backed by Singtel with a focus on social entrepreneurship
- **1337 Alpha Startups**: A pre-accelerator acceleration programme from Malaysia
- **Rockstart**: (still exploring) A leading Amsterdam-based accelerator from Europe
- **Entrepreneur First**: (still exploring) A UK-based programme that turns talented individuals into world-class founders

Japanese investors continued to make their presence felt in Singapore in 2014, as they sought out investment opportunities in Singapore and Southeast Asia.

The six most active Japanese investors in Singapore participated in a total of 10 deals (five Series A and five Series B). These six Japanese investment firms (in alphabetical order) are: CyberAgent Ventures, Global Brain, GMO Venture Partners, GREE Ventures, Rakuten Ventures, and JAFCO.

Noteworthy is also the emergence of two new VCs focussing on Southeast Asia: **Monks Hill Ventures** and **NSI Ventures**, Both are backed by serial entrepreneurs from Singapore. Monks Hill Ventures was started by highly respected rainmaker in the tech world, **Ong Peng Tsin** and former CEO of Infoomm Investments **Lim Kuo-Yi** being the people behind it, while NSI Ventures was started by **Hian Goh**, Founder, **Asian Food Channel**.

**Notable Investors:**

**1. Clearbridge Accelerator**


Clearbridge Accelerator is a Singapore-based National Research Foundation (NRF) backed technology commercializer and incubator. Their investment focus areas are in biomedical devices, advanced materials and computational algorithms. Some of its existing portfolio companies include:

- Clearbridge BioMetrics – Breakthrough invention using bio-mechanical properties instead of biomarkers to isolate rare circulating tumor cells from whole patient blood
- Clearbridge BioLoc – An elegant, extremely cost effective, robust platform for any standard immunoassay test.
- Clearbridge NanoMedics – Focus on utilizing base technologies on nanofiber manufacturing to produce bio-resorbable nanofiber scaffolding
- Clearbridge VitalSigns – a wearable heart waveform cardiac monitoring digital ECG plaster that can be simply adhered to a patient’s chest to gather and log vital human signals.

2. Small World Group

Small World Group is a Singapore NRF backed incubator. SWGI focuses on three areas of technology innovation – clean tech, optical systems and advanced materials. Some of its existing portfolio includes:

- Green Koncepts – focuses on monitoring and control systems for building energy and water usage
- Green Line Innovation- focuses on partnering with clean tech companies to be their bridge to Asia-based high volume manufacturing at lower costs.
- Third Wave Power- a personal electrical power generation, storage and use – the Swiss army knife of electrical power for the deep third world
- Wise Water – develops an energy efficient apparatus to produce purified water from salt water or wells that have heavy metals or fluoride

3. iGlobe partners

Founded in 1999, iGlobe is headquartered in Singapore, with operations in Silicon Valley, Shanghai and Auckland (NZ). Under its Platinum Fund, they invest in Clean technology, which includes Renewable Energy, Water Treatment Technologies, Smart Power Management and Energy efficiency, as well as Storage Technologies. One of its portfolio company in Singapore is Anacle Systems, a physical asset life-cycle management and energy efficiency company.

4. Vertex Venture Holdings

Vertex Venture Holdings is a wholly-owned subsidiary of Temasek Holdings, investing in emerging companies and leading venture capital funds throughout Greater Asia and the US. To date, Vertex has invested in more than 350 startup companies in the Pan Pacific and other regions, primary fund commitments to over 90 third party venture capital and private equity funds in the US, Europe and Asia, with a total deployed capital in excess of US$1.2 billion. Vertex has made investments in Taiwanese and US-based clean tech companies.
Concerns over lack of post-seed stage funding in Asia

Singapore has managed to plug the gap in the seed stage through government grants as well as the Technology Incubation Scheme (TIS) under the National Research Foundation (NRF), there is a huge focus now on what happens next. The TIS comes under the umbrella of the National Framework for Innovation & Enterprise (NFIE), which was formulated in 2008 with a S$360 million (US$280 million) budget to advance R&D-based innovation in Singapore with a goal for commercialization. Under the TIS, the NRF will co-invest with the chosen technology incubators in Singapore-based high-tech start-ups. Incubators have the option to buy out NRF’s equity share within 3 years of investment. To date, there are 14 approved TIS incubators on the NRF list.19

There are a lot of investments made by these 14 incubators, but there are not a lot of follow up investments. Are there enough venture capital firms to bridge the post seed stage investments?

“The US has over 1,000 VCs while ASEAN, a region covering ten nations including Singapore and Malaysia, where my company is headquarter, has approximately 20,” he added. “Even compared with our Asian neighbours ASEAN is lagging behind. China has around 600 VC funds; India has 400. The ASEAN number reflects a significant lack of support given the projections for the regions.” 20

Microsoft expands BizSpark programmes for startups in Singapore21

Microsoft Corp has announced an expansion of the Microsoft BizSpark programme in Singapore, introducing two new features.

The first is the launch of the BizSpark Residency Programme that houses startups with promising market potential at the revamped Microsoft Innovation Centre, the company said in a statement.

The second is an enhanced BizSpark Plus Programme that provides US$120,000 (S$162,000) worth of Azure cloud services credits per year (up from US$60,000 or S$81,000 per year previously) to qualifying local startups.

Under the newly-expanded programme, the new BizSpark Residency Programme offers 1,200 sq ft of complimentary co-working space at the revamped Microsoft Innovation Centre located at One Marina Boulevard to promising local startups.

With the aim to further grow the area into a startup hub within the city centre, the programme enables startups to be placed in an environment that fosters innovation, with easy access to Microsoft’s technical evangelists for guidance in scaling their businesses, the company said.

In addition, startups can also benefit from the centrally-located and accessible office in the heart of the central business district, as well as the cost savings from the complimentary office space and

20 http://e27.co/investor-voices-concern-over-lack-of-post-seed-stage-funding-in-asia/
accompanying business facilities, it added.

To sign up for the Microsoft BizSpark Programme, startups need to complete the steps at the BizSpark website to get up to three years of free software, support and visibility. Microsoft BizSpark members can also receive up to US$750 (S$1,013) a month in Azure credits for use on cloud services.

In order to qualify for the BizSpark Plus Programme, startups need to be nominated by Microsoft’s partner in Singapore, NUS Enterpr.

NUS Enterprise provides a complete suite of support programmes for local startups to test, share and grow their ideas for a wide array of business areas ranging from information communications and technology fields to biomedical and social enterprises.

1.2. Malaysia

MALAYSIA’S national ICT custodian Multimedia Development Corporation (MDeC) has officially launched the MSC Malaysia for Startups programme to facilitate and accelerate local startups in obtaining MSC Malaysia status.

The programme comes with the support of the Malaysian Global Innovation and Creativity Centre (MaGIC), as well as other ecosystem players such as StartupMalaysia.org, the New Entrepreneurship Foundation (MyNEF), Cradle Fund, Cyberview, the National Incubator Network Association, 500 Startups, the Technopreneur Association of Malaysia (TeAM) and the Founder Institute.

MSC Malaysia status is granted by the Malaysian Government, through MDeC, for ICT and ICT-facilitated businesses that develop or use multimedia and digital technologies to produce and enhance their products and services and opens access to a host of privileges granted by the Government to qualified businesses:

MSC Malaysia status offers multi-tiered incentives that are designed to spur the growth and increase the participation of digital entrepreneurs, SMEs (small and medium enterprises) and startups in the ICT industry and serves as an alternative route for young companies to attain MSC Malaysia status without being held to location requirements, providing:

- Flexibility in choosing location of operation;
- Ease of hiring foreign talents (they can employ up to 20 foreign knowledge workers in key positions);
- Competitive financial incentives, including 70% tax exemption of statutory income for five years; and
- Other MSC Malaysia Bill of Guarantees (BoGs) specified under this programme.

[http://www.mscmalaysia.my/msc4startups](http://www.mscmalaysia.my/msc4startups)
Malaysia's MaGIC accelerator program

The Malaysian government-funded MaGIC Accelerator Program (MAP) was launched by the Malaysian Global Innovation and Creativity Centre (MaGIC) at their campus in Cyberjaya. MAP consists of two parallel tracks—the ASEAN Startup track which has 52 startups; and the Social Enterprise (SE) track which has 25 startups.

The 77 startups which were selected for MAP were from a pool of over 1000 applications from 26 countries (goes to show how sought after the programme is), which brings the acceptance rate to only 7%. The startups were selected by a panel of judges from the industry based on 3 criteria:

a) The potential of a high scalable product targeting the ASEAN market.
b) Its readiness for early stage regional deal flows.
c) Their potential to expand into ASEAN and global markets.

MAP’s first cohort will run from July 27 to November 28, 2015. It is comprised of 52 startups focusing on ASEAN and 25 social enterprises plucked out of a pool of over 1,000 applications.

Sixty percent of the participants under this track come from Malaysia, while the rest are spread across Cambodia, Indonesia, Philippines, Singapore, Thailand, US, Uruguay, and Vietnam. They’re targeting a wide range of verticals such as agriculture, big data, clean tech, design, ecommerce, gaming, healthcare, media, security, and travel.

The Social Enterprise track – the first of its kind in Malaysia – aims to accelerate and develop 25 ideas from all over the country that address social and environmental issues.

For the ASEAN track, MaGIC will provide no seed funding but has negotiated perks worth over US$400,000 per startup from corporations such as Google, Microsoft, Evernote, and Amazon. MaGIC also provides a strong link to market partners such as Axiata, Tune Talk, Accenture, Maybank, and Digi Macrokiosk.

This is now the largest accelerator in Southeast Asia, if not Asia, effective 2016, there will be two cohorts each year. Unlike other accelerators, it does not take equity from participating startups and covers all their living expenses and accommodation.

**Cyberview will downplay its property part and focus more on the tech component**

Marking the shift in focus for Cyberjaya from being a national ICT (information and communications technology) hub to becoming a global tech hub, Cyberview will play a new role in its third permutation of ongoing relationship with Cyberjaya, Malaysia’s premier smart city. Cyberjaya has close to 40,000 ICT jobs within its boundaries and the highest concentration of top salaried ICT professionals in Malaysia.

23 https://www.techinasia.com/magic-accelerator-program-batch-1/
Cyberview plans to do this by focusing on nine technology areas. Five are in mainstream tech such as information security, creative content, mobile Internet, cloud computing, and big data analytics; the remaining four are green tech, biotech, wearables, and smart grids.

Cyberview Sdn Bhd is a government-linked company (GLC) that is 92% owned by Malaysia’s Ministry of Finance, with about 5% held by property developer Sime Darby Bhd and the remainder by Permodalan Nasional Bhd, the Malaysian Government’s investment arm and the advisor to the Government on MSC Malaysia and Cyberjaya development matters. It launched its Cyberview Living Lab Accelerator Programme by partnering with entrepreneurs to help run the programme.

It has picked Watch Tower & Friends (WTF) and Infinite Ventures (IV) as its programme managers. The accelerator programme is one of the pillars of Cyberview Living Lab (CV Living Lab), an open-innovation ecosystem providing a platform to elevate Malaysia’s entrepreneurship scene to the next level. Cyberview will rely on its programme partners to develop a comprehensive programme to accelerate entrepreneurs in idea creation, innovation and commercialisation, while providing industry knowledge and networks through mentoring and other market access opportunities.

**MSC Malaysia Startup Accelerator Lite programme**

Multimedia Development Corporation (MDeC) has announced a pilot programme to help local ICT startups break through barriers to growth. The MSC Malaysia Startup Accelerator Lite programme will be delivered by local partners around Malaysia. The programme draws on techniques developed by JFDI.Asia for its successful accelerator programme in Singapore, said the national ICT custodian, which manages the Multimedia Super Corridor (MSC Malaysia) initiative.

The MSC Malaysia Startup Accelerator Lite programme was open for application last year.

**National IoT Strategic Roadmap**

Malaysia's Ministry of Science, Technology and Innovation, MOSTI, together with its applied research agency, MIMOS, has unveiled the National Internet of Things (IoT) Strategic Roadmap, which aims to drive IoT implementation to a goal of generating RM9.5 billion (US$2.5 billion at current rates) to the country’s gross national income (GNI) by 2020, and RM42.5 billion (US$11.2 billion) by 2025.

IoT implementation goes across key social and economic sectors, and also expected to generate a total of 14,270 high-skilled employment opportunities by 2020, the Minister of Science, Technology and Innovation’s Dr Ewon Ebin said at the launch in Cyberjaya on July 9.
The National IoT Strategic Roadmap\(^{30}\) will serve a guiding document aimed at moving Malaysia into becoming a premier regional IoT hub.

It comes slightly over a year after national research and development centre Mimos Bhd held an IoT technical working group workshop\(^{31}\), which it said then was aimed at kicking off the development of a national blueprint.

Mimos has also been appointed implementation secretariat of the National IoT Strategic Roadmap: signing of three memoranda of understanding (MoUs) involving Mimos, Cyberview Sdn Bhd, CyberSecurity Malaysia and SAS Institute, will see them collaborating to develop Cyberjaya into a model ‘Smart and Safe City’ through IoT.

Cyberview will implement a smart traffic management system, public safety monitoring, energy management, and various other IoT-based solutions.

**New health fees for foreigners\(^{32}\)**

Healthcare fees structure for foreigners as imposed by the Ministry of Health, is prompting concerns that migrant workers and undocumented economic migrants, the largest and most vulnerable groups with low economic capabilities, may increase the possibility of new disease outbreaks spreading to local communities. This is a catastrophe waiting to happen if these worrying issue is not taken into account.

1.3. **Indonesia**

**Indonesia tops Asian sovereign issuance\(^{33}\)**

The rise of the Republic of Indonesia in the international bond market has been spectacular over the past few years, with a series of high profile transactions that not only showcased the borrower’s attractiveness to investors, but also its willingness to innovate. The prospect of a ratings upgrade just around the corner should help continue momentum, but the economic picture is mixed.

Indonesia is by far the largest sovereign issuer of international bonds in Asia ex-Japan, having raised a combined $19bn from 2010 to 2014. The second biggest issuer — the Republic of the Philippines — has only raised $8.75bn in the same period of time, according to Dealogic.

And in keeping with its status as the largest issuer of G3 sovereign bonds in the region, Indonesia has been busy in 2015, tapping the market twice. It raised $4bn at the start of the year with a dual-tranche offering split between a 10 year and 30 year. The deal saw it shave a big 150bp off its funding costs.

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\(^{30}\) [mimos.my/iot/roadmap2.html](http://mimos.my/iot/roadmap2.html)


\(^{32}\) [http://www.themalaysianinsider.com/sideviews/article/new-health-fees-for-foreigners-have-we-considered-all-john-teo#When:12:03:50Z](http://www.themalaysianinsider.com/sideviews/article/new-health-fees-for-foreigners-have-we-considered-all-john-teo#When:12:03:50Z)

The borrower has also benefited from the fact that investors — and in particular emerging market funds based in the US — have become increasingly comfortable with credit. Around half of the January 2015 deal was sold into the US.

In the last few years in particular its bonds have become increasingly popular, which also contributed to the country issuing more offshore. In 2010, Indonesia only tapped the international bond market once, with a 5.875% 2020 for a total of $2bn.

**Asian Development Bank less Positive about the Indonesian Economy in 2015**

The Asian Development Bank (ADB) has revised its economic growth forecast for Indonesia in 2015 from 5.2 percent year-on-year (y/y) to 5 percent (y/y).

The three factors that have caused the downward revision of the ADB’s economic growth forecast for Indonesia in 2015 are slow government spending, weak results of government reform programs, and weak export performance. On the back of these factors Indonesia’s GDP growth had already **slowed to a six-year low of 4.71 percent (y/y) in the first quarter of 2015**, which was far below ADB expectations, but the influence of these factors are estimated to persist throughout 2015.

**1.4. Philippines**

**Philippines eyes WTO deal as opportunity for tech industry**

The Philippines can boost exports of technology products to the US, Japan, South Korea, Taiwan, and the European Union (EU) after the World Trade Organization (WTO) agreed to remove tariffs on 201 products, allowing the country to access more than 90% of international markets.

On July 18, 54 WTO members agreed to expand the 1996 Information Technology Agreement (ITA), which involved 81 members originally. The updated agreement was confirmed in a July 24 meeting at the WTO headquarters in Geneva.

Once the ITA expansion is enforced, it might provide the Philippines with access to over 90% of global IT trade. Furthermore, it will create jobs through increase in FDIs (foreign direct investments) and will help to boost GDP (gross domestic product) growth for the country.

The Philippines is among the fastest-growing economies in Southeast Asia, with upgrades to sovereign investment ratings confirming improvements in the country’s macroeconomic fundamentals with the slowest internet in the region.

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Internet speeds are atrocious - a measly 3.6 megabits per second (Mbps), well below the regional average of 12.4 Mbps or the US average of 22.3 or near neighbour Singapore with 61 Mbps.

For years, the Philippines lagged behind the rest of South East Asia, and entrepreneurs looking for the next tech hub overlooked the country for other nearby booming economies, like Thailand and Singapore.

The Philippines is a good testing market with many unexplored opportunities and, with few experienced tech entrepreneurs around, not much competition.

Companies developing tech-based solutions for consumers in emerging markets see great opportunities in the Philippines today\(^{37}\). A growing number of innovative visionaries view the country as a testing ground for products and services with potential for global scale.

The country’s tech and startup ecosystems are growing\(^{38}\), skeptics often point to the limited post-seed funding, unfavourable business regulations, and other challenges that await would-be innovators.

Several qualities make the country particularly attractive in comparison to its peers.

- Cultural affinity for digital engagement. According to Perfect Digital Storm: Philippines, a recent market study that I co-authored with a digital strategy firm in Manila, Filipinos show some of the world’s highest levels of online brand engagement, growth in internet penetration, social media account usage, and other indicators of digital uptake. These trends cut across income levels and make the Philippines a promising market for tech companies of all types.

- The Philippines’ large English-speaking population. Along with Tagalog, English is the country’s official national language. Widespread English fluency reduces the localization challenges that global tech companies face there. It also gives Filipino entrepreneurs the English skills necessary to communicate with the international business community.

**The Philippines has announced a plan to build a national innovation centre\(^{39}\)**

The Philippines is getting serious about entrepreneurship. The archipelago has announced plans to build a national innovation centre, taking cue from MaGIC in Malaysia, Block 71 in Singapore and, of course, Silicon Valley in the United States—Porter’s theory of clusters is well and alive.

The initiative is a collaborative effort between start-up accelerator IdeaSpace, the Department of Science and Technology (DOST) and the Department of Trade and Industry (DTI)\(^{40}\). The initiative represents the Philippines’ first ever public-private partnership focusing on innovation and entrepreneurship. The innovation centre will have two locations – both of which will be near the country’s premier universities.

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Initial funding of PHP 30 million (US$665,000) will come from the government. The private sector will invest up to PHP 15 million (US$332,000).

The collaboration represents the first-ever public-private partnership (PPP) in the country that is focused on growing the local innovation ecosystem as the country aims to improve its positioning in the emerging global digital economy. The Philippine innovation centre will foster technology advancement and startup ecosystem growth.

The centre will also serve as a venue for government agencies and academic institutions to promote products, facilitate transfer of their R&D results, and establish connections with the investment community.

The creation of the innovation hub will be a critical component in boosting the Philippines’ ranking in the Digital Evolution Index (DEI), which ranks countries in terms of their readiness for the quickly expanding digital economy.

The Philippines is one of the so-called “break-out” nations in the recent global DEI study conducted by the US-based Fletcher School at Tufts University, using data from 2008 to 2013. The country stands alongside China, Malaysia, Thailand, and Vietnam as one of the “rapidly advancing countries” in the global digital topography.

**The Health sector**

In the Philippines’ 2016 draft budget, the health sector received a significant increase in allocated funding.

On July 6, President Benigno Aquino III approved the government’s draft budget and forwarded it to Congress for ratification. At more than P3trn ($66.62bn), the 2016 budget is the largest ever, with total allocations up 15.2% on 2015, set to represent 19.5% of GDP in his administration’s final year.

The Department of Health (DoH) was awarded P128.5bn ($2.85bn) for 2016, a 25% rise year-on-year. It was the second-highest increase in portfolio spending, after the Department of Public Works and Highways, which saw its allocation jump by 32%.

**The Philippines’ education investment scores top marks**

The Philippine government has made inclusive growth the cornerstone of its most recent Philippine Development Plan.

The inclusive growth strategy includes more public investments in the social sector. In particular, bigger budgets have been given to both education and health. For 2015 alone, the education budget totals 361.7 billion pesos (US$8 billion), representing an increase of 18.6 per cent from the previous

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year. The government has also invested heavily in a conditional cash transfer (CCT) Programme referred to as the Pantawid Pamilyang Pilipino Program.

Primarily a social protection program, Pantawid was originally aimed at providing social assistance for poor households on the condition that these households invest in education and health, particularly of children, and access maternal health services. Grants for education amount to 300 pesos (US$8) per child per month for 10 months of the school year (for a maximum of three children per household). For health and nutrition, cash grants per household were 500 pesos (about US$12) per month per family. Starting in 2014, the government extended assistance to child beneficiaries to enable them to finish their high school education. Monthly cash assistance for high school students were increased to 500 pesos.

This CCT has become the largest social welfare intervention that the government has ever implemented. Since its inception, the CCT budget has continued to increase, as has the number of beneficiaries. During its pilot stage, the CCT had a budget of 50 million pesos to assist 6000 households. A year later, the budget grew to 299 million pesos to assist 300,000 households. The government has continued to scale up the Programme toward the official estimates of the number of poor households in the country.

The 2014 budget for Pantawid was 62.6 billion pesos with over four million households being assisted. This has coincided with the extension of assistance to child beneficiaries to complete high school. According to World Bank staff, Pantawid has also become the third largest CCT programme globally, next only to those of Brazil (with 8.8 million households) and Mexico (6.5 million households).

1.5. Thailand

Supportive ecosystem

Thailand is a hot spot for the Asian boom in tech start-ups, having grown continuously for several years. Many of these start-ups are finding success through a supportive ecosystem, especially investments, acceleration programmes, conferences and other events.

One key event in June was the "Start It Up Conference". The ecosystem of tech start-ups in Thailand is rapidly growing, and it is time to accelerate their establishment and to expand their markets. Eighty to ninety per cent of tech start-ups in Thailand are in the early stage and require investment to scale up their business.

Some international investors have already backed Thai tech start-ups, such as Silicon Valley-based 500 Start-ups, Garage Technology Ventures, Tokyo-based early-stage venture-capital firm Global Brain, and Taiwan's appWorks Ventures.

MaGIC to launch startup database in June, may

A Malaysian government linked agency, tasked with fostering and developing a vibrant startup ecosystem, plans to launch a comprehensive dataset of startup activity, by next month. MaGIC which is setting up its ‘Startup Database’ as part of its 2015 game plan, has also seen a few hundred firms added to this platform, with about 350 investors in a distribution list. Of the total of investors on the list, about 60 per cent are foreign-based.

45 http://techsauce.co/en/news/start-it-up-conference-8-is-back/
On its website, MaGIC has pointed out that the database will come in handy for investors and the public to track the number of high growth startups in a country, records of funding raised, exit history, and their progress. The database will also make it easier for MaGIC and other agencies to assist startups and funnel parties to the right resources.

In 2015 MaGIC plans to continue with the initiatives and programmes it launched in 2014.

Last year, MaGIC brought selected startups which were ready to expand in Singapore and Indonesia to attend conferences in the respective countries. Under the Startup Asia initiative to encourage regional exposure, the agency may look to bring startups that are ready to grow in Thailand to attend conferences in that country this year.46

MAP is slated to run its first four-month programme this July. Under the MaGIC Academy, the agency has trained 13,800 entrepreneurs to lead high-growth startups.

**Thailand deploys small cells technology to support growing demand for mobile data** 47

Thailand’s mobile service provider AIS is deploying small cells technology to improve cellular services. Deployment started in September 2014 and 500 units have already been installed, with plans to reach 3,000 this year.

AIS said it reached 97 percent of the Thai population with its 3G coverage and is using small cells to help strengthen its network with much needed capacity.

Alcatel-Lucent is providing its 9764 Metro Cells Outdoor, together with integration and technical support for high quality and rapid deployment. It will also deploy its 5620 Service Aware Manager.

1.6. Vietnam

**Vietnam scraps foreign ownership limits in investment push**48

Foreign investors will be able to take 100 per cent stakes in big Vietnamese companies as the populous Southeast Asian country seeks to revive its stuttering economy with international money and trade deals. The much anticipated law change will scrap curbs on overseas ownership in some industries, although some0 leading sectors such as banking will remain controlled.

The new rules are part of a broader push by Vietnam to step up a sluggish privatization program, strike trade agreements with the US and EU, and boost its status in the widely followed MSCI world markets indices. The 49 per cent ownership cap on overseas investment in some industries will be removed from September, according to a government decree. The announcement gave few other


details, although it said industries such as banking that are covered by separate rules would keep ownership limits at 30 per cent.

Vietnam is also keen to make its stock market more attractive by winning an upgrade from "frontier" to "emerging" market status in the influential MSCI index. While Vietnam's population is a third bigger than that of neighboring Thailand, the Ho Chi Minh City bourse is less than an eighth of the size of its counterpart in Bangkok.

After a decade of being a member of the World Trade Organisation (WTO) - a milestone that marks the first investment wave in Vietnam - the country is now negotiating a range of new free trade agreements (new generation FTAs), such as the Trans-Pacific Partnership (TPP) agreement and the Vietnam-European Free Trade Agreement (Vietnam-EU FTA), which are expected to bring the second wave of investments.

According to statistics published by the Vietnam Chamber of Commerce and Industry (VCCI), Vietnam is expected to remain at the forefront of this trend among the 12 countries joining TPP negotiations. The nation’s gross domestic product (GDP) is forecasted to increase by 23.5 billion USD by 2020 and export value is expected to increase to 68 billion USD by 2025.

New generation FTAs create great opportunities for Vietnam to increase its price competitiveness compared to the WTO (members states only commit to reducing but not eliminating tariffs for “some” but not “most” tariffs). FTAs, therefore, include hugely beneficial preferential conditions, particularly tariff incentives.

1.7. Japan

Big Data Market

The Japan big data market is expected to reach a value of $2.05 billion by 2019, at a CAGR of 27.5% from 2014 to 2019. Among the services, the Japan big data market is expected to reach a value of $0.91 billion by 2019. Consulting services market in Japan is expected to reach a value of $0.48 billion by 2019.

Although, China holds the largest share in the APAC Big Data Market, Japan and Australia are also expected to grow considerably. The growth of the big data market in this region is driven by the rise in transactional and unstructured data, growth in applications of big data for marketing activities, growth in the public sector, issues regarding data privacy, and the rise in ICT expenditure. It acts as a tool to understand different domains of information related to data, and provide insights which are essential for the decision-making process of the companies.

Geographically, Japan is estimated to hold a share of 33% by 2014 of the Global Big Data Market. Australia held a share of 23.2% of the overall APAC big data market in 2014. Japan big data

49 http://www.researchandmarkets.com/research/cgcx88/japan_big_data
market is primarily driven by the technological advancement and the rise in amount of transactional data.

As of 2014, the Japan big data market is estimated to be dominated by IBM, Microsoft, Oracle, Dell, HP, and Teradata. New product launches, partnerships, acquisitions, and collaborations are the major strategies adopted by most of the players to achieve growth in the Japan big data market.

The Abe Government Grapples with Low IT Investment

2015 Abe government awarded the first annual “Japan Venture Prize”—it faces an uphill battle to encourage entrepreneurship in the IT-producing sector, not least because low levels of investment in IT-using sectors depress demand for new hardware and software.

In basic measurements of IT infrastructure—number of mobile phone and Internet users, Japan is at least as technologically advanced, if not more so, than other G7 countries. Japan has seen the rapid diffusion of both Internet usage and mobile telephony. Although smartphone penetration may be lower than in other countries—estimates suggest that 75% of US mobile subscribers used smartphones by the end of 2014—the Cabinet Office’s survey of household purchases of consumer durables suggests that, as of March 2015, of the 94.4% of households with mobile phones, 60.6% had smartphones.

Japan has lagged in integrating IT into business activities. There is some debate over the degree to which IT investment has contributed to productivity and growth in advanced industrial economies. Northwestern University’s Robert Gordon has asserted, for example, that the most significant productivity gains from IT took place decades ago and that recent developments have added little in the way of productivity. Others have argued that IT, like electricity, is a “general purpose technology,” notable for its ability to enhance productivity and reshape business organizations across sectors, though there may be a lag before the productivity gains from IT investment are realized in IT-using sectors.

Despite differing views on how IT impacts productivity, the impact of automation on labor in developed economies suggests that IT investment, whether in increasingly sophisticated computers, industrial robots, mobile communications technology, cloud computing, or other software packages, enables firms to produce just as much or more with fewer workers. This impact can be seen in manufacturing and increasingly in transportation, retail, and other service sector jobs. Whether by replacing a grocery store checkout line with self-service checkout, replacing a brick-and-mortar storefront with a website, replacing bank counters with automated teller machines, or using “Big Data” to gather information about customers, IT has the potential to disrupt traditional patterns of employment, transform relations between employers and employees, and upend industries across the economy, albeit not always for the better.

Given the disruptive potential of IT investment, it is perhaps not surprising that, despite Japan’s impressive IT infrastructure, many firms have been slow adopters. For example, the Organization for

Economic Cooperation and Development data suggests that, between the years 1998 and 2008, Japan’s IT investment as a share of non-residential gross fixed capital formation was near the bottom of the G7 countries and substantially below the United States (see figure 4 below). More recent data collected by Japan’s Ministry of Economy, Trade, and Industry suggests that IT investment has remained sluggish in the years following the 2008 global financial crisis. For example, a fiscal 2013 METI survey of company IT usage—which collected information from more than 5,000 firms—showed that the average company spent ¥592.5 million on IT in fiscal 2012, a 4.8% drop from the previous fiscal year.

While lower IT expenditures may, to some extent, reflect falling prices, other findings suggest that falling IT expenditures also reflect sluggish demand. For example, gains in IT expenditures are concentrated among firms with at least ¥100 billion in capital. Indeed, the average amount of annual expenditures on IT by firms with ¥1 billion or less in capital (the vast majority of firms) has been flat for almost a decade. In addition, METI found that average gains or cuts in IT expenditures closely tracked the average company’s expected revenues, suggesting that firms were quick to cut IT spending when it appeared that bad times were ahead. Moreover, based on an examination of “stages” in IT adoption, roughly 90% of firms with capitalization between ¥100 million and ¥1 billion failed to progress beyond either the first or second of four stages of IT usage, and 50% of firms with capitalization of less than ¥100 million failed to progress beyond the first stage, in which IT usage is haphazard at best. Finally, IT expenditures were concentrated disproportionately in the financial sector, where the average firm spent ¥6.4 billion on IT in fiscal 2013, well ahead of the second-place transportation sector with average firm expenditures on IT of ¥1.5 billion.

A survey conducted in November and December of 2012 for METI’s Small and Medium Enterprise Agency shows that businesses—especially small businesses—not only have not invested in IT but had no plans to do so or were unaware of new technologies. For example:

- 82.1% of small businesses, 83.7% of medium-sized businesses, and 70.8% of large businesses had no plans to use online auctions or e-retail sites, like Rakuten.
- 74.1% of small businesses, 70.1% of medium-sized businesses, and 59.3% of large businesses had no plans to set up their own sites to sell products or take reservations.

Among small businesses, when asked about their awareness of cloud computing, 30% said they knew nothing and 18.1% said they did not understand the question.

- 78% of all companies said they did not use and had no plans to use cloud computing.
- Nearly 80% of small businesses said they had no plans to introduce productivity-enhancing IT or did not see it as appropriate for their business.

Throughout the survey, small businesses were consistently less interested in adopting IT, suggesting that promoting IT as a means of enhancing productivity in the service sector will be a significant challenge for the Abe government. To some extent, the problem is education: when companies of all sizes that had not adopted IT were asked why, the most common answer (54.7%) was that they did not understand the effects IT would have and would not be able to evaluate it. Price is an issue too. More than 44% of all non-adopters said they could not bear the cost of IT investment. Other reasons
for low levels of IT investment, as suggested by Hitotsubashi University economics professor Fukao Kyōji and others, include offshoring by Japanese manufacturers; the small size of firms in the service sector; low levels of entry by new firms; and the rise of temporary workers, which has depressed labor costs and discouraged firms from making investments in IT skill development.

Reluctance to invest in IT may help explain the struggles facing Japan’s indigenous IT industry. Japanese companies have labored to keep pace with competitors in other developed countries as IT has shifted from hardware to software and software as a service (SaaS) has emerged.\(^3\) With relatively little domestic demand compared to other countries, Japanese companies are largely absent from the global software industry. According to the PwC Global 100 Software Leaders list, compiled by the PricewaterhouseCoopers Technology Institute, as of 2011, only four Japanese companies ranked among the top 100 global software companies in terms of revenue. And that figure actually overstates Japan’s presence in the global industry: of those four, only one (Trend Micro, ranked #32) received at least 10% of its total revenues from software. The other three—Fujitsu (#12), Hitachi (#20), and NEC (#26)—received only 6%, 2%, and 4%, respectively, of total revenues from software.

Underlying the relative absence of Japanese software firms from among the world’s leaders are comparatively low rates of entrepreneurial activity. According to the Global Entrepreneurship Monitor, an ongoing study of cross-national entrepreneurship founded by Babson College and the London Business School, in 2014 Japan’s total early-stage entrepreneurial activity rate was 3.83%, the lowest in the G7. By comparison, the rate in the United States was 13.81%, the highest in the G7.\(^4\) Moreover, GEM found that Japan lagged its G7 peers on attitudes regarding entrepreneurship.

Among Japanese respondents, aged 18–64:

- Only 2.52% said they intended to start a business within three years, the lowest rate in the G7 (although substantially higher than the 0.7% of Japanese who answered affirmatively in 2004).
- Only 30.98% said starting a new business was a “desirable career choice,” the lowest rate by far in the G7 (in Germany, the second-lowest, the figure was 51.66%).
- Only 55.81% agreed with the statement that successful entrepreneurs are accorded high status, also the lowest rate by far in the G7.
- Only 7.27% saw good opportunities to start new businesses, again the lowest rate in the G7 by far.

Given low levels of domestic adoption of IT and interest in entrepreneurial activity, it is not surprising that Japanese firms are lagging in the global software industry. Moreover, Japan’s entrepreneurship data, when combined with data showing a lack of knowledge and interest in IT on the part of many Japanese businesses, suggests that Japan may face a vicious cycle when it comes to encouraging the use of IT and the growth of a robust IT sector.

The upshot of the reluctance of Japanese businesses to embrace IT is that Japan has trailed the United States in total factor productivity growth—a measure of the impact of investments in new technology—in both the manufacturing and the service sectors. Although in the past the United States has been an outlier in its ability to use IT investment to raise productivity and has seen TFP growth slow in recent years, the prospect of a shrinking workforce means that Japan is particularly dependent on boosting productivity.
Yet, encouraging firms to adopt IT and individuals to start new firms cannot be solved simply through public investment. Unlike Japan’s IT policy at the start of the 2000s, which focused above all else on developing infrastructure, IT policy now must address the supply side obstacles preventing firms from investing in productivity-enhancing technology. In short, IT policy must also encompass labor market policy, education policy, industrial policy, and tax policy.

Abe government’s June 2013 “Declaration to be the World’s Most Advanced IT Nation” acknowledged that promoting the widespread use of IT was essential to realizing sustainable growth over the long term.

Released the same day as the Abe government’s first growth strategy, which covered the “third arrow” of Abenomics, the declaration signaled that the government not only recognized that IT investment was imperative for raising labor productivity but also that previous governments had not gone far enough to encourage investment. Pointing to the strategy articulated in 2000 by the Mori government, the declaration noted, “The original strategy emphasized use of IT, but simply espousing the adoption and use of IT without an adequate understanding of user needs or undertaking business process reforms that go beyond organizational boundaries did not allow for IT to exhibit its full benefits and efficiency.” It criticized the failure of previous governments to overcome the tendency of Japan’s ministries to duplicate efforts and stressed the need for central coordination in the prime minister’s office.

To this end, the Abe government created the new post of chief information officer to oversee a five-year programme to promote IT investment as outlined in the declaration. The three major goals were (1) promoting the creation of new industries; (2) encouraging the use of IT to manage healthcare, disaster preparedness, transportation, and energy issues; and (3) embracing the use of IT to simplify access to public services.

However, like much of the Abe government’s “third arrow” policies, the proposals failed to measure up to the declaration’s lofty ambitions. Regarding the first goal—perhaps the most important for raising productivity over the longer term—the government declared its intention to promote the use of “Big Data” by the private sector, partly through making public data available, encouraging the use of IT by agricultural producers, and supporting the creation of new ventures engaged in “open innovation.” The metrics by which these policies would be judged, however, were loosely defined. Moreover, in its self-assessment of progress towards implementing these programs, the government awarded itself high marks largely for administrative achievements (steps by ministries to establish supervisory bodies, for example) rather than for tangible progress towards the goal. The declaration’s goals for fostering expertise in IT, essential for the sector’s development, were similarly vague, which a subsequent document—the December 2013 “Strategy for Developing Human Resources with Creative IT Skills”—did little to clarify.

Abe government recognizes that it needs to do more to promote greater IT investment outside the IT sector. The government’s Industrial Competitiveness Council, which has spearheaded the drafting of growth strategies, has already indicated that its focus for this year’s growth strategy will include policies aimed at maximizing Japan’s potential growth. The council previously stressed the need to increase the earning power of small and medium-sized enterprises in the service sector and to
achieve breakthroughs in the use of the Internet, Big Data, artificial intelligence, and the “Internet of Things.” The ICC’s plan for 2015 also will stress the importance of fostering new sources of human capital through higher education reform and greater employment opportunities for women and immigrants. Until the government issues its growth strategy in June, however, it is unclear exactly how it will achieve these goals.

Ultimately, raising the productivity of Japanese businesses will depend less on policies directed at promoting innovative technologies and more on education, the labor market, and business policies. It is not sufficient to call for more “flexibility” in the labor market: with the emergence of temporary “dispatch” workers, the Japanese labor market is more flexible than in the past. The challenge going forward is to enable and encourage experienced laborers to seek new opportunities, create new businesses, and lend their expertise to startups. In addition, Japan must provide college graduates with the skills necessary to opt out of the “simultaneous recruitment” process and start a new business, confident that they will still be able to advance even if their venture fails. Prime Minister Abe himself has long stressed the need to create a society in which individuals can “challenge again and again.” If workers can leave stable jobs without having to worry about their subsequent employment prospects, small businesses may have an easier time investing in labor-saving technology. But increasing worker confidence in taking risks will require both significant policy adjustment and bottom-up cultural change to encourage individuals to exploit new opportunities.

2. High-Technology Markets and Trends

2.1. Mobile

Rising number of mobile users in Asia\textsuperscript{51}

Korea and Japan were amongst the early users of mobile in Asia. Having adopted 3G at an early stage, these two countries have been leading the region in terms of technology, and other kind of services providing diversified content that was diffused within Asia. Although there has been a freefall in the number of mobile subscribers, other parts of the Asian countries are catching up to become the centre of the growth in Asia.

\textsuperscript{51} https://www.techinasia.com/talk/mysterious-big-w-asia/
ROA Holdings has selected 10 countries in Asia that are assumed to show key movements in the near future. The total number of mobile subscribers in both China and India are currently occupying almost 75% of the remaining 10 countries. Smaller counterparts such as Indonesia, Malaysia, Philippines and Vietnam are following suit with a rapid growth rate. Myanmar, on the other hand, is slowly catching up although it is still nascent in the mobile industry.

The high penetration of mobile users in Asia has resulted in the highest share in transactions through mobile devices, which was registered at 71.2% in 2009. The number of mobile users in 2009 have led to the highest record of mobile payment users worldwide, followed by Europe and North America.

Android remains the dominant mobile operating system in the region. According to a research study by Frost and Sullivan, Android was obtained dominance for its affordability and high popularity of Chinese low-end smartphones in developing markets. The popularity of Android as a preferred choice of mobile operating system in Asia has made it difficult for game developers in terms of which version of Android to support.

Nevertheless, Frost and Sullivan are positive that smartphone and tablet usage will become mainstream by 2019. For example, in Thailand, 50 percent of its population uses a smartphone. The average revenue per user for tablets is 4.2 times that of smartphone users in the region.

The Asian market is known for its obsession with mobile gaming and social media applications. Mobile chat apps that are highly popular with the Asia masses would be the Line app. This application is especially popular in the Thai Market. Singapore, Malaysia and Philippines are still
mostly using Whatsapp, while many Indonesians are still using BBM with legacy Blackberry service. Vietnam, on the other hand, has its own home-grown chat application, Zalo.

Social Media, on the other hand, such as Facebook has also become increasingly important in Southeast Asia in spreading the word about games. For most part, Southeast Asian players are playing games that are popular in the West. That includes, Supercell’s Clash of Clans and Line’s Let’s Get Rich.

Gaming

In 2014, Frost & Sullivan noted that mobile gaming in Southeast Asia experienced an impressive growth, with US$1 billion of total revenue predicted to reach US$7 billion by 2019. This was reported to be the best growth in the world, compared to any other region.

2.2. Digital Marketing

Digital Advertising Investment in Asia market

The current digital market trend in Asia has seen some of the biggest investment in online and mobile advertising. With investment in online and mobile advertising totaling $23.70 billion in 2014, China will maintain the largest share of the region’s digital ad market, at 50.9% — a trend that will continue through 2018. Meanwhile, Japan and Australia will rank second and third, with respective digital ad spending increasing to $9.07 billion and $4.52 billion in 2014.

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2.3. FinTech

While the most common FinTech trends across Asia have been in Bitcoin, Mobile Payments, P2P Platforms and Digital Banking. Having observed over 120 startups from Singapore to Sydney, there have been clear trends within these diverse ecosystems.

FinTech\textsuperscript{53}, or “Financial Technology,” is quickly reshaping the finance sector. In particular, FinTech is drastically changing the investment industry. Investment consultancy companies that use FinTech software, such as Enhance, are strategically positioning themselves in FinTech hotspots around the world.

Companies in finance and technology are seeking out Singapore because the country has one of the fastest growing markets in Asia.

One example is Enhance. Established in 2005, the company now has over £20 billion in assets across 12 jurisdictions. It has grown in leaps and bounds, opening its London and Cayman Islands offices just within the past year. The company now has its sights on Singapore, an ideal hub for FinTech businesses with a high level of demand for FinTech investment services.

According to Markus Gnirck, Co-Founder and COO of Startupbootcamp FinTech, Singapore is the top spot in Asia for FinTech ecosystem growth. Other Asian cities with hot FinTech ecosystems are Hong Kong, Shanghai, Seoul, Mumbai, Bangalore, and Tokyo. The sheer number of accelerators, incubators, and investors in Singapore place it at the top of the list. Additionally, it is important to remember Asia’s untapped markets, like the mobile payments sector, which also provide a wealth of new opportunity.

“FinTech enables wealth managers to get the most out of their data. The software delivers information that not only provides clarity but also insights that add real value. It identifies precisely what is happening with a client’s money, how, where and why growth is occurring (or not) and in turn informs the next steps wealth managers should take with their client’s investments. It enables us to see intricate patterns and, from them, make better-informed projections for portfolios. It essentially brings data to life, and with it, takes our clients’ investments much further.

What’s hot\textsuperscript{54}

Hong Kong has shown a strong presence of ventures that are offering B2B solutions for hedge funds and investment firms, Big Data analytics and wealth management. A healthy mix of local and foreign entrepreneurs are using Hong Kong as a beachhead segment to enter the huge Chinese market. The maturity of the Hong Kong ecosystem can be seen in professionals leaving the finance sector and

\textsuperscript{53} \url{http://bitcoinist.net/enhance-open-singapore-base-meet-asian-fintech-demand/}

\textsuperscript{54} \url{https://www.linkedin.com/pulse/rise-fintech-asia-markus-gnirck}
launching a startup. Institutions like Cyberport\textsuperscript{55} are offering early stage support to get these ventures off the ground.

**Jakarta** and **Kuala Lumpur** are very early-stage FinTech ecosystems where activities to innovate the finance and banking space have just started. The majority of startups are offering B2C solutions that mostly are in the Personal Finance Management (PFM), mobile payments and expense and bill-splitting management. As these entrepreneurs discover large consumer pain points, these easier-to-build solutions are typical for an early stage ecosystem (like in the US and Europe five years ago).

**Shanghai**, as the Finance capital of China, has shown stronger presence of FinTech startups than Beijing. One might expect a large amount of B2C startups serving the Chinese consumers, however most startups that pitched were actually building products for the finance industry. Promising startups in the wealth management and Big Data industries dominate the Shanghai scene.

**Seoul** has put itself on the FinTech map. The government announced last year that innovation in banking is top of the agenda which helped to catalyse FinTech. Even though regulations bring barriers to entry, P2P lending and crowdfunding platforms are emerging. Additionally, startups aggregating data for investment decisions can be found.

**Mumbai** and **Bangalore** have shown the high-quality engineering skills of Indian entrepreneurs. Highly tech-driven startups build solutions for various verticals in FinTech: Big Data Analytics, Payments and Authentication. However, more and more B2C startups are emerging which design digital products for the growing Indian middle class, such as social trading platforms.

**Tokyo** is in the early stages of becoming a buzzing FinTech ecosystem. Because of a highly regulated environment, so far PFM’s and other consumer facing products can be found. Japan has still to unlock its potential of its skilled engineers that have made this country highly technical.

**Singapore** has a mix of trends that reflect the diversity of this maturing FinTech hotspot. There are startups in cryptocurrencies, P2P lending, payments, wealth management and remittances. Singapore, as the Finance hub of South East Asia, brings a wealth of expertise, funding opportunities and market access that is beneficial for every fast growing FinTech startup. The educated community of more than 200 mentors, plenty of VCs and government support ensures that the right input is given to grow the business.

Every FinTech startup that is keen to build a scalable product and to take it to international markets, should seek the advice of mentors and investors as early as possible. There is no lack of mentors in each ecosystem, however they need to be given a platform to come together and work with startups.

**Payment is still a big issue in Asia**

When it comes to payment, Asia is still lacking behind time as compared to its Western Counterpart. Payment channels are increasingly becoming the major impediment to revenue growth in the region.

\textsuperscript{55} http://www.cyberport.hk/
as smart devices become mainstream. As a region, credit card penetration is extremely low, as all
countries in the region excluding Singapore and Malaysia have credit card penetration of less than
10%. This makes purchasing virtual goods extremely difficult for most gamers in the region.
Furthermore, prepaid distribution for Apple and Google vouchers is still not available in most
countries on a large scale. These factors mean that e-payment solutions present a big opportunity in
the Southeast Asian market. In fact, BitCoins and other electronic payment mechanisms are
becoming increasingly popular in the region.

However, e-payment solutions such as Bitcoin are becoming increasingly popular. This demand for
payment has made it possible for Asia to be the next big thing in digital disruption.

**Bitcoin, investment opportunities & Asian prospects**

Bitcoin, a relatively new FinTech innovation, it holds tremendous promise and opportunities for
investors and entrepreneurs interested in exploring the space.

**Bitcoin (BTC)** is a decentralised cryptocurrency and digital commodity money, operating on a bi-
directional flow where it’s traded for various fiat currencies like the Singapore Dollar (SGD),
Japanese Yen, Euro or US Dollars (USD). It’s also a peer-to-peer (P2P) system secured via
cryptography that was introduced as an open source project by a developer or team of developers
going by the pseudonym of Satoshi Nakamoto.

Functioning on the blockchain — a public ledger of transactions — it confirms transactions
throughout the network. BTC nodes use the blockchain to distinguish legitimate transactions from
attempts to re-spend coins spent elsewhere, whether by a network fault or fraud. The distributed
ledger and trustless security of the blockchain is what grants BTC its usability, with its use as a
currency being a single use case.

While most established financial institutions (i.e. banks) prefer to disassociate themselves from
Bitcoin, they are integral to the blockchain’s functionality, given that BTC mining is the foundation
of the BTC network. Miners are rewarded for their mining in bitcoins as an incentive to contribute
time and computing power to maintain the blockchain.

BTC presents significant opportunities for investment, with the BTC ecosystem maturing through a
stage where it has suffering significant markets shocks, a bubble, extensive negative publicity,
misinformation and myths. Technically, the blockchain that underlies BTC is already validated.

Industry leaders and thought influencers have come out in support of it, citing capabilities such
as intelligent contracts and distributed autonomous corporations (DACs), in addition to its use as a
currency.

Investment capital flowing into the Bitcoin and cryptocurrency space in the US market reached
US$400 million in aggregate funding by Q4 2014, according to New York-based CB Insights.

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Despite heavy volatility, investors maintained capital injections into emerging digital currency companies, ranging from bitcoin wallets to data providers to blockchain APIs.

Some notable deals in the space including Blockstream which raised $21M from investors including Reid Hoffman, Khosla Ventures and Real Ventures. Coinbase raised a $25 million Series B round from Andreessen Horowitz, Union Square Ventures and Ribbit Capital while Bitpay raised a $30 million Series A round from Index Ventures, AME Cloud Ventures, Felicis Ventures and Founders Fund.

The most promising markets for BTC lie in the Asia-Pacific (APAC) and Africa. This is due to the large volume of emerging markets in the region, significant numbers of unbanked consumers and the growing Internet and smartphone penetration that the region enjoys. These markets are also enjoying significant velocity in the growth of their banked population and their middle class.

The fact that financial infrastructure is growing also presents a market where entrenched interests (i.e. multi-national banks) do not wield as much influence over the financial infrastructure, though that influence is still significant. This allows for greater freedom to navigate the market, especially in terms of regulations.

Aside from being emerging markets with unbanked populations, many APAC nations like Indonesia, India, Bangladesh and the Philippines also have significant diasporas and emigrant communities based around the world, who often remit money back to their home nations.

Mainstream banks like Credit Suisse and the Bank of England are slowly warming up to the prospects presented by this new market. They're exploring the possibilities of integrating Bitcoin or Bitcoin-like capabilities into current financial infrastructure. The use of Bitcoin brings significant benefits, with the risks mitigated by year-on-year (Y0Y) growth of the ecosystem. It's even emerged as a store of value alongside gold.
Two cities that have emerged in the Asia-Pacific as Bitcoin hubs are Hong Kong and Singapore. Given their status as financial hubs, ItBit, a Singapore-based Bitcoin exchange, recently shared a comparison of the two written by Antony Lewis, their director of business development.

Lewis concluded that “Hong Kong and Singapore share many similarities. Both have bitcoin-friendly governments that have welcomed digital currency companies and helped drive innovation across the space. However, though both Singapore and Hong Kong regulators have a reputation for being world-leading, they seem to be in a holding pattern when it comes to creating a regulatory framework for cryptocurrency companies.”

**MAS to adopt new regulatory approach to boost financial technology system**

With the rising wave of new financial technology (FinTech), MAS plans to adopt new regulations and initiatives to grow a conducive ecosystem for innovation. Digital payments, for example, are one of many different kinds of FinTech making their way into the financial system.

The Monetary Authority of Singapore (MAS) is taking steps to create a Smart Financial Centre, in line with the country’s Smart Nation plan.

Speaking at an industry event on Monday (Jun 29), MAS managing director Ravi Menon stressed that a safe and secure environment is critical in fostering financial innovation: "A smart financial centre must be a safe financial centre. Technology can be a double-edged sword. If not managed well, it can potentially lead to a variety of risks in the financial industry."

“The first priority on our journey towards a smart financial centre is therefore to continually strengthen the industry’s cyber security."

Mr Menon said MAS will work with industry players to develop guidance on new technology and possibly new financial infrastructure. He added that it is important for financial institutions (FIs) to seize the opportunity and innovate to stay ahead of the curve.

Besides adopting a new regulatory approach, MAS will be launching several initiatives to encourage FinTech development. These include putting aside S$225 million over the next five years under its Financial Sector Technology & Innovation scheme.

The government in Singapore is a strong driver of the success of financial innovation in the Asian city-state. Just this month, the Monetary Authority of Singapore announced that it will allocate US$166 million (equivalent) in the next five years to the growing fintech ecosystem. This is not the only initiative the government of Singapore has implemented to boost fintech innovation.

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Startupbootcamp FinTech, one of Europe’s largest fintech accelerator programs, recently landed in the financial capital and is mentoring promising fintech startups with support from the Singaporean government.

These developments are unfolding amidst a mostly unbanked Asia, which opens up tremendous opportunities for disruptors to advance financial inclusion. With new companies and innovative technologies emerging rapidly, it’s predicted that a majority of Asian consumers will most likely skip credit cards and ATMs and jump directly online.

**IMJ out to tap startup ecosystem surge in South-East Asia**

THE startup ecosystem in South-East Asia has certainly moved on to the next level in the two years IMJ Investment Partners (IMJ) has been in the region, in terms of both valuations and activity.

“When I first visited Jakarta, Tokopedia’s valuation was at US$10 million – now it’s at US$300 million,” IMJ chief executive officer Yuji Horiguchi (pic above) tells Digital News Asia (DNA).

“This shows that South-East Asian startups have been growing at a really fast pace,” he says in an interview at his office, with IMJ’s South-East Asia regional manager Ryusuke Hirota assisting with the translation.

IMJ’s startup focus has been on ‘platform players,’ with its portfolio companies spanning industries like financial technology, education technology, and e-commerce. “We are investing in the platform business and not just the game producers,” says Horiguchi.

Platform businesses connect scattered service providers to users via a single online platform. These platforms add value by providing functions such as review, payment and logistics, among others.

There are four main criteria IMJ uses when evaluating a startup for investment, according to Horiguchi:

- THE size of the addressable market: Evaluating the market size the startup can address and secure by itself is important in sustainability;
- A PROVEN business model that has been replicated in other developed markets like Europe, Japan or the United States;
- THE founders’ capabilities and their ability to manage and run the company;
- HOW persuasiveness the business plan can be to other investors.
- Investment interest in a startup is if it has an eye on the Japanese market

Technology is not a focus because Horiguchi feels that developed countries like Japan and the United States would have already developed the technology. The main draw of South-East Asia is the addressable market size.

IMJ prefers to focus on early stage and pre-Series A to Series A rounds.

**PH venture builder Incubix Tech partners fintech startup VMoney**

Incubix Technologies, the first “venture builder” startup in the Philippines, has partnered with local financial technology (fintech) startup VMoney Inc with the goal of disrupting the e-commerce business.

Incubix Technologies that claims to be a venture builder is different from incubators, accelerators, venture capitalists and angel investors. It hatches business ideas from within its own network of resources and appoints internal teams to complete its development and successful deployment.

With founders originating from New York, Incubix Technologies has partnered with VMoney for online payments.

**Singapore’s regime for anti-money laundering and countering the financing of terrorism**

The central bank's regulation and supervision of the financial sector has been evaluated by the International Monetary Fund as “among the best globally” the Monetary Authority of Singapore said on Jul 15.

It issued a statement in response to recent queries over its AML/CFT regime. The MAS said Singapore is firmly committed to maintaining its status as a clean and trusted financial centre. The country has "no tolerance for its financial system to be used as a refuge or conduit for illicit fund flows", MAS stated.

MAS said all financial institutions in Singapore are required to conduct stringent checks on the sources of their customer funds, including customer due diligence and regular account reviews. Financial institutions are required to monitor for and report any suspicious transactions.

Its AML/CFT regime comprises four key elements, namely, strict regulation, rigorous supervision, effective enforcement, and close cross-border co-operation.

**2.1. EdTech**

**Asia becomes primary market for ed-tech accelerators**

Ed-tech is a viable vertical for entrepreneurs to enter, especially the ed-tech accelerators space

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63 http://e27.co/asia-becomes-primary-market-for-ed-tech-accelerators-20150703/
An apparent by-product of the growing popularity of entrepreneurship over recent years has been an increase in the amount of specialised accelerators for specific industry verticals such as health, finance, energy and education. In addition to the greater diversity of industry verticals that these accelerators now serve, there also appears to be increased interest from a wider variety of accelerator facilitators to include corporations that use specialised accelerators to outsource R&D, government agencies attempting to promote digital economies through state-run initiatives.

**Ed-tech revenue coming in from Asia**

As many EU- and US-based ed-tech companies find a rising percentage of their revenue originating in Asia, there is an increasing interest in developing product and engaging consumers directly in specific Asian markets. Case in point, a US$65 million funding round from MOOC provider Udemy was raised for international expansion efforts, assumingly Asia, with initial outreach potentially in Japan or English language content-driven markets such as Hong Kong, Singapore and Philippines.

Ed-tech startups outside of Asia seeking to scale globally will need to embrace the fact that amidst the combined sum of India, China and ASEAN, there sits a significant portion of the global K-12 market, a booming higher education supply and demand, and a need for either more localised content or enhanced curation of existing content. Other countries in the region such as Japan and Korea have some of the highest caregiver-to-child-spend ratios in the world, particularly for first-time parents who spare no expense in the early years phase of learning.

Test prep, tutoring, and secondary student supplemental services that ease the transition to university provide the second burst in caregiver spend.

The local ed-tech ecosystem is evolving as well. In Asia, there is an observable notice of year-on-year growth with the amount and quality of education-focused events such as EdTech Asia meetups that feature industry leaders, Startup Weekends that focus solely on education, and national teacher corps programmes such as Teach for China and Teach for Thailand.

The latter has had significant impact on educational entrepreneurship both in the US and China, as youthful, altruistic teachers completing their two-year assignment are acutely aware of the problems that exist in the K-12 learning environment. Armed with the greater technological proficiency of their generation, these teachers not only seek to address issues through entrepreneurship, but are highly motivated and capable of successfully implementing these innovative solutions as well.

As these ecosystem enhancers continue to gain popularity throughout the region and a handful of locally developed ed-tech startups become more well known such as Thailand’s Taamkru, Indonesia’s Harukaed, China’s Chase Future, Vietnam’s Topica, Malaysia’s EasyUni and Singapore’s Literatu, the younger generation will be provided more opportunities for awareness and to seek educational startup experiences.

**Ed-tech startups who stand out**

It’s worth mentioning that Taamkru and Chase Future were winners at Echelon Asia Summit in 2014 and 2015 respectively. A growing societal acceptance of tech entrepreneurship as an honourable
option to the corporate employee path can only enhance innovative ideas and ultimately it appears as if a handful of newly specialised acceleration programmes will be there to fill the void.

Here is a non-comprehensive selection of some of the better known accelerators actively seeking ed-tech based startups from the Asia region.

**EDGE**

Edge is a three-month, mentor-led programme in New York City. NYC is a logical hub for global ed-tech companies interested in scaling in the US and is home to the largest US K-12 school district, the largest community college network, the largest education publishers, the most prestigious teacher’s colleges, headquarters of the corporate training departments of some of the largest companies, world-renowned early childhood learning brands, two million students and financial firms who invest in education.

The EDGE accelerator offers startups US$170,000, more capital than any other accelerator in the space, and provides a powerful network in education, technology, talent and experience to accelerate budding ed-tech companies. In 2015, it aims to focus especially on companies solving problems in pre-kindergarten, corporate learning and teams tackling or entering into Asian markets.

It helps to position startups to complete a round of funding after the programme at the US$500,000 to US$5 million level.

**Lithan in cooperation with Red Dot Ventures**

Lithan is the first ed-tech focussed accelerator in Singapore. The programme has two phases, the first being the ideation phase that consists of a six-week edupreneurship bootcamp conducted by the Lithan Hall Academy. During this phase, ed-tech innovators will more fully develop their business models and validate their ideas through engagement.

Ideas that pass this phase will be formally accepted into the second stage where they can utilise Lithan’s applied education training, rooms, equipment, and mentorship to rapidly expand their business.

**The Malaysian Innovative and Creative Centre Accelerator Programme (MAP)**

MAP has a two-track accelerator system that welcomes education startups through a social entrepreneurship programme. The two-track system has both a ‘Malaysia team entries only’ social enterprise intake, as well as a regional programme that can take in teams from member countries from the ASEAN Economic Community (AEC).

Selected teams are awarded free housing and flight transportation to Kuala Lumpur in addition to the typical advisory and capacity development achieved through workshops and cohort engagement.

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64 [https://www.f6s.com/edgeaccelerator-nyc2015/apply](https://www.f6s.com/edgeaccelerator-nyc2015/apply)
LearnLab

Based in Beijing, LearnLab has a strong partnership with Teach for China and Teach for All and is backed by mentors and advisors representing some of the regions most active investment entities such as 500 Startups. The accelerator is focussed on educational startups and enterprises across China and international companies looking to expand into China.

2.2. Cloud

Hybrid IT is fast becoming the new normal across organizations in Asia-Pacific. With the increasing utilization of data centres and cloud services across the Asia Pacific region, companies have gradually updated or upgraded their existing IT systems, giving rise to the Hybrid IT environment.

As a result, there is greater acceleration in the adoption of a multi-vendor multi-cloud environment or Hybrid IT. More than half of enterprises surveyed last year are planning to move to a Hybrid environment over the next 12 to 18 months. This is putting the onus on vendors and services providers as the traditional IT procurement model is being disrupted by new business models. The service providers are responding to this by accelerating their pace of service innovation.


These two trends (Hybrid IT and Cloud Enabling Technologies) are also creating a strong demand for data centre and cloud services. This in turn is driving the data centre construction frenzy across Asia-Pacific.

Frost & Sullivan research estimates the market in Asia-Pacific to have been worth US$25.7 billion in 2014. It is expected to grow at a CAGR in excess of 20% over the 2014 to 2019 period to reach US$65.2 billion. Frost & Sullivan expects the cloud services to be the dominant segment of the market with a CAGR of 33.1% for the forecast period.

This widespread adoption is also driving significant new investments across the region. Here in Singapore, most service providers are looking to invest in capacity and capabilities to be ready to serve the next phase of growth for their customers. We are witnessing investments worth billions of dollars by telcos, cloud service providers and data center operators in data center, submarine cable and networks.

Other key trends having a strong impact on the data centre and cloud computing market include the implementation of a Software Defined Everything Vision, stricter data sovereignty laws, such as in Indonesia and the rise of vertical cloud computing applications.

66 http://e27.co/tag/500-startups
In the long term, Frost & Sullivan recommends enterprises focus on three key pillars - Service Portfolio Augmentation, Geographic Expansion and Business Model/Deliver Capability Enhancement.

**Acronis opens its R&D facility in Singapore**

Acronis has opened its research and development (R&D) centres in Singapore, which will host from 120-150 engineers.

Mark Shmulevich, Acronis' chief strategy and operations officer, said the company's R&D lab will partner various research institutes under A*Star to do what he described as "pathbreaking research and development". The three A*Star institutes that Acronis will partner are the Data Storage Institute, Institute for Infocomm Research (I2R) and Institute of High Performance Computing (IHPC).

Apart from A*Star, Acronis has established ties and is open to collaborations with other research and educational institutions in Singapore, such as the National University of Singapore (NUS), Nanyang Technological University (NTU), Singapore Management University (SMU) and Temasek Polytechnic.

"Opportunities are in the areas of joint research, co-engineering education programmes, hiring graduates and internships. Acronis has already offered internships to all universities and polytechnics in Singapore, providing opportunities for new graduates to make a career in a global IT company."

He added that the company also supports the efforts to improve the IT efficiency level of local small and medium-sized enterprises (SMEs).

At its peak, the R&D lab would employ between 120-150 highly qualified researchers and will become the company's second-biggest research centre after its Moscow-based R&D hub.

Mr Shmulevich said the company expects to spend around S$50 million over the next five years on the R&D centre, mostly on attracting the right quality of talent. The company hopes to hire most of the researchers from local tertiary institutions.

### 2.3. Data Analytics

Ad analytics platform Cinarra Systems managed to acquire $20 million in series B funding that will be targeted towards attracting mobile carriers into the ad business to rival Verizon Communications Inc. (NYSE:VZ).  

Cinarra Systems, announced that it secured $20 million in Series B funding led by SoftBank Corp. ("SoftBank"), the Japan-based telecom subsidiary of SoftBank Group Corp. In addition, Cinarra has begun joint business operations in Japan with SoftBank, offering new opportunities for Japanese

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advertisers to engage with consumers. SoftBank has introduced the service to its network in Japan, operating a targeted advertising platform.

The new funding will allow Cinarra to grow its product engineering team and expand its business with operators globally. Joining the funding round is Almaz Capital, an early stage venture firm bridging technology talent from Eastern Europe with Silicon Valley, which led Cinarra's $4.5 million Series A round in 2013 along with Cisco Investments. Siguler Guff & Company, a multi-strategy private equity investment firm headquartered in New York, also participated in the Series B with an investment from the firm's dedicated technology fund.

By eliminating the complexities of integrating operator and advertising platforms -- and addressing head-on the issue of consumer data privacy -- Cinarra is creating the foundation for a more prosperous mobile economy for everyone involved. Tapping into vastly underutilized mobile operator data, Cinarra's mediation platform is the first to unlock new economic value for operators and advertisers around the world. This platform addresses full privacy protection considerations by using mobile operators' well-established security practices and Cinarra's privacy-preserving architecture.

Cinarra’s CEO Alex Zinin cofounded the company in 2012 to take advantage of the big niche in the mobile operator data. The company gives advertisers the consumer data they require from non-Verizon users to carry out segmented targeting. The company plans to introduce a global platform that will be available on a global scale. This will boost the company and allow it to get into the new growth phase in the mobile internet economy. He also added that the strategy will most likely provide numerous opportunities for the firm.

Zinin described his firm alike an open version of AOL, Inc. (NYSE:AOL) that connects the mobile industry and the ads business. The key aim is to provide data to carriers while they are tasked with finding ways to monetize the data provided while at the same time making sure not to violate user policies. He also pointed out that segment targeting is one of the most sensitive areas that need to be addressed.

Zinin also acknowledged that there are many data service providers in the market that offer targeted ads, but he pointed out that his company is offering a unique and different strategy. The company’s admittance to carrier information opens up a wide array of information, especially location based information. It will, therefore, offer a customer-oriented view rather than an application or browser-oriented view.

2.1. IoT, Smart City, Smart Nation,

Virtual Singapore

Dassault Systèmes is cooperating with the National Research Foundation (NRF) to develop Virtual Singapore, an integrated three-dimensional (3D) model of the city-state with semantics and attributes.
in virtual space. Dassault Systèmes and NRF envision it will be used by Singapore’s citizens, businesses, government and research community to develop tools and services that address the emerging and complex challenges the nation faces, the company said.

This project will build upon Dassault Systèmes’ 3DEXPERIENCity platform to create a dynamic, 3D digital model of Singapore and connect all stakeholders in a secured and controlled environment.

The Singapore Land Authority (SLA) is providing 3D topographical mapping data and will own and operate the project once it is completed, while the Infocomm Development Authority of Singapore (IDA) is providing information and communications technology expertise.

Virtual Singapore is a S$73-million (US$53.4-million) research and development programme which was launched in December 2014, as part of Singapore’s Smart Nation drive and led by the National Research Foundation (NRF) and is expected to be completed by 2018. The Virtual Singapore goal is to create an intelligent information platform that will be used by the citizens, businesses, government and research community to solve emerging and complex urbanisation challenges.

Virtual Singapore project to help solve emerging and complex challenges by creating a 3D model of city-state with semantics and attributes in virtual space to form a collaborative platform with a rich data environment and visualisation techniques.

The model will employ data analytics and simulate modelling capabilities for testing concepts and services, planning, decision-making, researching technologies and generating community collaboration.

Access to a 3D model simulation provides more than visualisation, enabling cross-agency collaboration on a common platform, to help arbitrate the impact of new initiatives.

There’s also the potential to expand this to mobile devices to enable new services and offer access to citizens in the decisions shaping how their city develops.

Singapore will maintain ownership and management of its (sensitive) data, and Dassault’s platform only indexes it. The Virtual Singapore platform is currently an on-premises installation within a Singapore-controlled environment.

**MSM is new normal in Asia**

Companies in the Africa, Middle East and Asia Pacific (AMEAP) region continue to outperform other regions around the world in the adoption of this technology with over 35% adoption, compared to a global average of 27%.

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According to the Vodafone M2M Barometer Report, in addition to growing awareness and adoption of M2M technologies, a significant majority of early adopters are already seeing clear business advantages from M2M deployment — 81% of those surveyed have expanded their use of M2M technologies over the last year.

Further, 59% of companies report a significant return on investment from M2M, and 83% see M2M as a source of competitive advantage.

“Across all markets in this region, we see heightened interest and adoption of M2M among companies to improve business performance as well as to turn these improvements into exportable products and services,” said Justin Nelson, head of Machine-to-Machine business at Vodafone Asia Pacific.

“M2M is the new normal where innovative use of these technologies is driving hard business results and helping Asian companies differentiate themselves in the marketplace,” said Nelson.

The report also found that nearly 24% of the smaller SMEs (100-249 employees) use M2M, compared to 35% of organisations with over 50,000 employees.

Globally, the sector which has shown the greatest increase in use of M2M has been retail, up 88% year on year. Retailers are using the technology for new payments services as well as digital signage in stores and driving efficiencies in logistics.

Further, the study found strong growth in the healthcare sector (up 47%) and the utilities sector (up 32%).

Meanwhile, the automotive industry continues to embed M2M as a core technology within the designs of new vehicles, with the accelerating production of so-called “connected cars” accounting for a 14% year-on-year increase in M2M adoption in that sector.

Georgia Tech and National University of Singapore Launch New Logistics Research Center

The National University of Singapore (NUS) and the Georgia Institute of Technology recently launched a Center for Next Generation Logistics.

The virtual centre will work with government agencies and industry to perform cutting-edge research in logistics and supply chain systems.

The centre’s research will initially focus on two areas: pre-competitive, mission-focused knowledge discovery such as models for evaluating information in supply chains; and company-specific research for enhanced competitiveness.

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The centre has already collaborated with DHL-Singapore, SDV Logistics and ZALORA MARKETPLACE to address the challenges they are facing, which include how to conduct data analysis to improve operation efficiency, a feasibility study of automation technology, and cross border logistics.

The centre will receive $880,000 in seed funding from the two universities over a two-year period. The centre expects to grow from the current staff of five full-time researchers to 25 by 2018. The centre aims to secure additional research funding by actively collaborating with government agencies and industry partners.

2.2. Robotics

Asia-Pacific robotics technology market is expected to reach $29.49 billion by 2020\(^\text{74}\)


Currently, the automotive sector accounts for 49.92%, of the Asia-Pacific robotics market, followed by the electronics sector which accounts for 22.17%.

The dynamic automotive industry and low-cost manufacturing units in the Asia-Pacific region accelerate the adoption of industrial robotics in manufacturing industries. Industrial robots accounted for major share in the Asia-Pacific robotics technology market, estimated at 73.47% in 2014, registering a CAGR of 6.76% during 2015-2020.

In diverse industries including healthcare, food and beverage segment robots currently accounts for 8.48% of the Asia-Pacific robotics technology market.

Service robots operate semi or fully autonomously and assist humans in different personal and professional tasks. Service robotics and mobile robotics are forecast to register a high CAGR during 2015-2020 in comparison to industrial robots.

Some organizations that govern and regulate the technology of robotics in the Asia Pacific region include, China Robot Industry Alliance (CRIA), Japan Robot Association (JARA), Taiwan Automation Intelligence and Robotics Association (TAIROA).

- The Asia-Pacific robotics technology market is forecast to grow at a high rate in the future owing to high need of automation by diverse industries
- The industrial robotics segment accounts for a major share in the Asia-Pacific robotics technology market

The healthcare application of robotics technology would register the fastest CAGR of 16.46% during 2015-2020.

China is the highest revenue generating region in the Asia-Pacific robotics technology market.

The major players in the market include ABB Group, Fanuc Corporation, Yaskawa Electric Corporation, Yamaha Corporation, Kawasaki Heavy Industries Ltd, Honda Motor Co. Ltd. and Seiko Epson Corporation.

**Industrial Robotics Market to Reach US$44.48 Billion by 2020**

Recently released report from Transparency Market Research (TMR) forecasts that the global industrial robotics market will grow at a CAGR of 6.2% between 2014 and 2020. TMR, a market intelligence firm based in the U.S., states that the global industrial robotics market will reach a market value of US$44.48 billion by 2020, growing from US$28.93 million in 2013. The report, titled "Industrial Robotics Market - Global Industry Analysis, Size, Share, Growth, Trends and Forecast, 2014 - 2020" is available for sale on the website. According to this market research report, factors such as the widespread adoption of robotics in small and medium enterprises and rising labor costs drive the global industrial robotics market. High investment in research and development activities and reduction of duties, especially in the regions of Asia Pacific and Rest of the World, are other main factors that will propel the overall industrial robotics market. Greater use of robotics in manufacturing and strategic business expansion initiatives will create several growth opportunities in the global industrial robotics market in the forecast period.

The TMR report segments the global industrial robotics market on the basis of type, industry, function, and geography. According to type, this market is classified into cylindrical, Selective Compliant Assembly Robot Arm (SCARA), Cartesian, and articulated robots. On the basis of industry, the global industrial robotics market is segmented into precision and optics, food and beverages, metals, machinery, rubber, chemicals and plastics, electrical and electronics, and automotive. Precision and optics, metals, and food and beverages are the three industrial segments that will lead overall demand for industrial robots in the forthcoming years. Based on function, the report segments the global industrial robotics market into milling, cutting and processing, painting and dispensing, assembling and disassembling, materials handling, soldering and welding, and others. In 2013, the materials handling segment held the largest share in the global market.

The prominent companies in the global industrial robotics market are Yaskawa Motoman Robotics, Universal Robots, Panasonic Corporation, Nachi Robotic Systems Inc., KUKA Robotics Corporation, FANUC Ltd., and Denso Corporation.

**Changi General Hospital eyes robot aid for service, productivity boost**


The new Centre for Healthcare Assistive and Robotics Technology (CHART) at Changi General Hospital (CGH) will aim to leverage robotics and assistive technology to develop healthcare solutions.

Since February this year, a robot called HOSPI has been delivering items such as medicine, medical specimen and patients' case files within the hospital. It is able to move around and even use the lifts on its own.

The items HOSPI carries can only be accessed with ID cards. The robot also has trays for medical staff to put items on. It communicates and relays information on its whereabouts to the control centre, enabling its location to be monitored at all times.

HOSPI is also equipped with security features to prevent tampering, theft and damage during delivery. It is equipped with sensors and programmed with the hospital's map data to avoid obstacles such as patients in wheelchairs. New hospital routes can also be programmed in advance.

The new centre will test such technologies before use in the hospital. It will be equipped with a design lab as well as a living lab with mock wards, clinics and surgery rooms. It said it will work with various healthcare clusters, care providers, and partners from academia and the research industry to come up with new technologies.

An interactive robot that can entertain patients while they wait for their appointments and humour children during vaccinations is among the projects.

Another project being tested is a system to sort out surgery instruments. It is usually done by a nurse's assistant, and automating the process will eliminate human error.

Currently, CGH is collaborating with Nanyang Technological University as well as the Singapore University of Technology and Design on the test projects at CHART.

**Mobile Robots Market Worth 10,6 Billion USD by 2020**

According to a new market research report on the "Mobile Robots Market by Environment (Aerial, Ground, and Marine), Component (Hardware and Software), Application (Professional Service and Personal Service), and Geography (North America, Europe, Asia-Pacific, and the RoW) - Global Forecast to 2020", published by MarketsandMarkets, the Mobile Robots Market is expected to grow at a CAGR of 16.31% between 2015 and 2020, and reach USD 10,605.4 Million by 2020.

The global mobile robots market was valued at USD 4,4 Billion in 2014 and it is expected to reach USD 10,6 Billion by 2020, at an estimated CAGR of 16.31% between 2015 and 2020. The professional service sector constituted the largest application for the mobile robots market in 2014 and it is expected to continue to grow at a significant rate because of the increasing applications, such as logistics, inspection & maintenance, telepresence, and field robots across the globe. In the

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personal service application segment, the market for mobile robots is expected to be driven by the increase in the adoption of robots from applications in educational institutions, domestic tasks, and robotic pets.

The key markets of Japan, China, South Korea, and India are expected to drive the Asia-Pacific market. It will also be fuelled by the increase in focus of the major global mobile robots vendors to expand their product and service offerings in the Asia-Pacific region, as this region is expected to witness a significant growth in terms of the adoption of mobile robots over the next decade.

The report describes the market dynamics that include the key drivers, restraints, challenges, and opportunities with respect to the mobile robots market and it forecasts the market till 2020. This global report provides a detailed view of the mobile robots market across environments, components, applications, and geographies. The report also profiles the prominent players in the mobile robots market along with their key growth strategies. The competitive landscape of the market analyses a large number of players with their market share. The market is witnessing numerous collaborations and partnerships across the value chain, to cater to various industries in different geographies.

The major companies in the global mobile robots market that have been included in this report are iRobot Corporation (U.S.), KUKA AG (Germany), Amazon.Com, Inc. (U.S.), Google, Inc. (U.S.), Bluefin Robotics Corporation (U.S.), Adept Technology, Inc. (U.S.), GeckoSystems Intl. Corp. (U.S.), Northrop Grumman Corporation (U.S.), ECA Group (France), and Honda Motor Co., Ltd. (Japan), and others.

**Innovation Matrix Partners With Fetch Robotics To Provide Robotics Research Platform**

Fetch Robotics has developed a robot system comprised of mobile manipulator robot called "Fetch" and a mobile base "Freight" for the logistics and material handling industry.

With Innovation Matrix's knowledge in the Trans-Pacific, the partnership will provide Fetch's robots to robotics researchers in the Pacific Rim region to accelerate research work in robotics. This effort will accelerate development of applications for the robotics industry.

"We are delighted to have Innovation Matrix and Mr. Onaga representing us in these countries," said Melonee Wise, CEO of Fetch Robotics. "Mr. Onaga has over 40 years experience in robotics business and engineering, has extensive experience in selling industrial and service robots in Asia, and speaks fluent Japanese. This is an excellent team to have develop our distribution in these Asian countries."

**Startup with rehab robot aims for next level with crowdfunding drive**

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Malaysian startup TechCare Innovation Sdn Bhd hopes to take its rehabilitation robotics system from research to the marketplace with a pledge drive on pitchIN, the domestic equivalent of Kickstarter.

The company’s Compact Rehabilitation Robot (CR2) is a series of robotics systems developed for rehabilitation training, or essentially as physiotherapy aids. TechCare itself is a spinoff company from UTM (Universiti Teknologi Malaysia), where the system is being developed.

Its latest iteration, CR2-Haptic, is aimed at those who have suffered strokes, traumatic brain injuries or other neurological disorders resulting in hand and arm impairment. It is designed to train forearm, wrist and basic ‘activity of daily living’ (ADL) movements, according to TechCare Innovation.

It is one of 20 projects launched on the pitchIN crowdfunding platform as part of the official launch of the Malaysian Global Innovation Centre (MaGIC) in late April, where even Malaysian Prime Minister Najib Razak (pic, far right) had a go at the system.

The company has already met its first crowdfunding level of RM5,000, having raised more RM12,000, that will allow it to donate the software portion – a Microsoft Kinect-based game – to a non-profit rehabilitation centre operated by the National Stroke Association of Malaysia (Nasam).

“However, we know that even with the best research outcome at the university, if we can’t deliver CR2-Haptic to market for patients to use it, it makes no difference because they would not be able benefit from the outcome at the end of the day.

CR2 was the winner of MaGIC PitchIN challenge, collecting up to RM27,599 from 100 contributors.

CR2-Haptic is a portable and compact rehabilitation robot which can be used to train patients’ muscle functions while they play games. It allows patients to train at home by integrating tele-monitoring technology that enables therapists to monitor the patients’ progress via the Internet.

This feature also allows therapists and family members to easily analyse and review the progress of the patient, according to TechCare Innovation.

Using robotics in stroke and similar rehabilitation is not new, with several other systems such as the In-Motion Arm and Reo-Go already in market, but which the Malaysian company says are too expensive and bulky for home use.

2.3. Cybersecurity

The UK and Singapore signed a Memorandum of Understanding to cooperate in four areas, including cyber security incident response and cyber security talent development. (July 29) 81. There will also

be joint cyber research and development collaboration between the UK and Singapore, with funding being doubled over three years, from £1.2 million to £2.4 million (S$5.1 million).

The MOU was signed by Cyber Security Agency chief executive David Koh and Britain's National Security Adviser, Sir Nigel Kim Darroch. It built on agreements made during President Tony Tan Keng Yam's state visit to Britain last year.  

The specific deliverables under the four areas are currently being discussed, and will be finalised during the next UK-Singapore Cyber Dialogue.

**Temasek Poly sets up IT security and forensics hub**

The hub aims to provide students with hands-on training in areas such as IT networking, digital forensics and security operations, in order to increase the pool of trained cyber security specialists.

**Opportunities in cybersecurity market in Asia for upcoming decade.**

Not only are Hong Kong or Singapore leading the efforts, but many second-tier markets like Indonesia, Vietnam and Malaysia are investing as well.

The rising wave of attacks and the awareness of them in the region reflect what happened in the United States 10 years ago.

“Asian organisations are right in the crosshairs of today’s APT (advance persistent threat) attackers,” FireEye chief technology officer Grady Summers said at the RSA Conference Asia Pacific & Japan (RSAC APJ) 2015 in Singapore last week, citing research conducted by his security software firm.

- APAC customers 33% more likely to be targeted than global average of 27%
- China Govt the culprit behind many of these attacks or campaigns

About 37% of FireEye’s customers in Asia Pacific detected advanced cyber-attacks in the second half of 2014, and are 33% more likely to be targeted than the global average of 27%.

Speaking to Digital News Asia (DNA) on the side-lines of the conference, Summers said that in terms of IT maturity, Europe was about five to six years behind the United States while Asia was about 10 years behind. “Ten years ago in American IT, it was all about cost-cutting. Outsource all your IT to India, and we were getting 10-20% cost cuts year on year, but after a while you ran up against a brick wall in terms of security – and that forced a lot of change. “There are a lot of factors at play and IT is now being seen as a driver of business, so we are seeing budgets creeping up again. “Asia as a region can be averse to spending money on IT and security, but the trend has to reverse in the next few years because you can’t solve this problem with cost cutting,” he said.

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Summers also reported that in the past 12 months, the APT space had got more diverse, with groups emerging from different geographies. “Now we’re seeing countries like Iran, North Korea and Syria getting in the game,” he said.

2.4. Digital Government

All companies in Singapore can now file their corporate taxes online regardless of their annual revenue, announced the Inland Revenue Authority of Singapore (IRAS) on Tuesday (Jul 28). 85

Although e-filing was first introduced for small companies in 2012, companies with annual revenue of more than S$1 million will now be able to file their Simplified Form C online for the first time from June.

As such, companies can benefit from reduced compliance costs and productivity gains, as well as the convenience of going paperless, said IRAS. Other benefits include a 15-day extension till Dec 15 to file the tax return, filing assistance with an iHelp facility, a function to save the draft version and instant acknowledgement upon successful e-filing.

According to IRAS, the number of small companies that have e-filed Form C-S has grown steadily since 2012, with about 10 per cent more qualifying companies choosing to e-file each year.

The online Form C-S is easy to use and requires minimal training. It generally helps to cut down time spent on updating basic information of the client.

Companies and tax agents also noted a reduction in printing and courier charges, which led to greater cost savings.

2.5. e-Commerce

**Industry Trend Analysis - Investors Bank on Asian e-Commerce Prospects** 87

Re-commerce sales in 11 key South East Asian markets - excluding China - reached USD 344 Billion in 2014.

The region's most affluent markets - Japan, Hong Kong, South Korea and Taiwan - lead the field with USD326 Billion in combined sales. This is not surprising, given the advanced state of technology in these countries and consumers' deep familiarity with buying goods and services remotely and/or using credit cards rather than cash. Established transportation and logistics infrastructure provide extra security, ensuring that goods are delivered on time and in good condition at low cost.

### Key Asian e-Commerce Markets, 2014

<table>
<thead>
<tr>
<th>Country</th>
<th>HK</th>
<th>IN</th>
<th>ID</th>
<th>JP</th>
<th>MY</th>
<th>PH</th>
<th>SG</th>
<th>SG</th>
<th>TW</th>
<th>TH</th>
<th>VN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (mn)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet Users</td>
<td>6.5</td>
<td>148.4</td>
<td>51.0</td>
<td>104.4</td>
<td>20.9</td>
<td>27.3</td>
<td>5.9</td>
<td>41.1</td>
<td>20.8</td>
<td>15.6</td>
<td>33.7</td>
</tr>
<tr>
<td>Internet Penetration (%)</td>
<td>89.9</td>
<td>11.7</td>
<td>20.2</td>
<td>82.2</td>
<td>69.4</td>
<td>27.3</td>
<td>70.9</td>
<td>83.0</td>
<td>88.9</td>
<td>23.2</td>
<td>36.4</td>
</tr>
<tr>
<td>3G/4G Subscriptions</td>
<td>13.9</td>
<td>69.2</td>
<td>37.8</td>
<td>143.5</td>
<td>20.7</td>
<td>18.3</td>
<td>7.8</td>
<td>55.2</td>
<td>26.1</td>
<td>81.2</td>
<td>28.7</td>
</tr>
<tr>
<td>3G/4G as % of Mobile Market</td>
<td>79.8</td>
<td>10.5</td>
<td>11.7</td>
<td>92.6</td>
<td>46.1</td>
<td>16.0</td>
<td>96.3</td>
<td>95.2</td>
<td>84.5</td>
<td>83.1</td>
<td>21.1</td>
</tr>
<tr>
<td>No. of Online Shoppers</td>
<td>4.8</td>
<td>35.0</td>
<td>31.7</td>
<td>77.0</td>
<td>19.4</td>
<td>22.4</td>
<td>5.2</td>
<td>27.2</td>
<td>14.0</td>
<td>10.1</td>
<td>31.2</td>
</tr>
<tr>
<td>Online Shoppers as % of Internet Users</td>
<td>73.8</td>
<td>23.6</td>
<td>62.2</td>
<td>73.8</td>
<td>92.7</td>
<td>82.0</td>
<td>81.8</td>
<td>66.2</td>
<td>67.2</td>
<td>64.7</td>
<td>92.6</td>
</tr>
<tr>
<td>Market Value (USDbn)</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Retail Sales (USDbn)</td>
<td>191.2</td>
<td>1,250.3</td>
<td>508.1</td>
<td>2,735.7</td>
<td>181.1</td>
<td>207.2</td>
<td>118.9</td>
<td>582.8</td>
<td>198.9</td>
<td>222.2</td>
<td>95.0</td>
</tr>
<tr>
<td>e-commerce as % of retail (e)</td>
<td>6.4</td>
<td>1.0</td>
<td>0.3</td>
<td>9.2</td>
<td>0.5</td>
<td>0.6</td>
<td>1.5</td>
<td>6.5</td>
<td>11.9</td>
<td>0.2</td>
<td>0.1</td>
</tr>
<tr>
<td>e-commerce Sales, USDbn (e)</td>
<td>12.2</td>
<td>12.5</td>
<td>1.5</td>
<td>251.7</td>
<td>0.9</td>
<td>1.2</td>
<td>1.8</td>
<td>37.9</td>
<td>23.7</td>
<td>0.4</td>
<td>0.1</td>
</tr>
<tr>
<td>Opportunity at 5% of Retail Sales, USDbn (e)</td>
<td>32.0</td>
<td>5.0</td>
<td>1.5</td>
<td>46.0</td>
<td>2.5</td>
<td>3.0</td>
<td>7.5</td>
<td>32.5</td>
<td>59.5</td>
<td>1.0</td>
<td>0.5</td>
</tr>
<tr>
<td>Opportunity at 8% of Retail Sales, USDbn (e)</td>
<td>51.2</td>
<td>8.0</td>
<td>2.4</td>
<td>73.6</td>
<td>4.0</td>
<td>4.8</td>
<td>12.0</td>
<td>52.0</td>
<td>95.2</td>
<td>1.6</td>
<td>0.8</td>
</tr>
</tbody>
</table>

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**Notable Companies:**

Lazada[^88] has built an ecommerce business that serves 5m customers and was valued at €1bn in its latest round of funding.

Started out as an online electronics store, Lazada has expanded to sell everything from cosmetics to furniture. Last year, the company introduced a marketplace that allows retailers to list their wares online, avoiding the risks of managing inventories and earning revenues through commission. As a result, Lazada’s range has grown by a multiple of 10 to some 3m products.

Over three years ago, Lazada launched in five fast-growing markets — Indonesia, Malaysia, Thailand, Vietnam and the Philippines. Disposable incomes are rising fast, but many consumers in the region are spread across remote areas and few reliable delivery services exist

Lazada’s main competitors are successful local businesses, such as Tokopedia in Indonesia and Superbuy in Malaysia. While global retailers such as Amazon have a relatively limited presence in Asia Pacific, they are closely watching activity in the region, where internet retailing has grown to a $285 billion industry, according to the latest figures from Euromonitor, the market researcher.

Lazada’s net revenues doubled year-on-year to $154m in the 2014 financial year. Heavyweight investors have piled in, including Tesco, the UK retailer, and Temasek, the Singapore-backed wealth fund.

[^88]: [http://www.ft.com/intl/cms/s/0/677e2a32-2af7-11e5-acfb-cbd2e1e81cca.html#axzz3hTafNllS](http://www.ft.com/intl/cms/s/0/677e2a32-2af7-11e5-acfb-cbd2e1e81cca.html#axzz3hTafNllS)
Eight Indonesian giants enter e-commerce industry

The industry is actually in a positive stream and shows bright potential. ICS predicts that the e-commerce market in Indonesia will grow up to 42% by the end of this 2015. This makes at least eight companies, focusing on industry of retail, consumption product, telecommunication, technology, heavy equipment, and tourism, starting their expansion to the e-commerce area.

Indonesia holds a huge potential for the current e-commerce industry, particularly because Indonesia has more than 80 million citizens getting connected to the internet. Based on ICD’s research, the growth of e-commerce in Indonesia may reach up to 42% during 2012-2015. It’s definitely higher than that of other countries like Malaysia (14%), Thailand (22%), and The Philippines (28%).

Meanwhile, a research by idEA, Google Indonesia, and Taylor Nelson Sofres (TNS) predicted that total e-transactions in Indonesia will reach USD25 billion (around 300 trillion Rupiah) by 2016. It will triple the figure in 2013, which was “only” USD8 billion.

Now, there are at least eight Indonesian companies entering e-commerce industry:

PT Panorama Sentrawisata Tbk (PANR), and PT Mitra Adiperkasa Tbk (MAP) plans on focusing more on its e-commerce capability, especially on its mapemall service which is set to be launched in this year’s second semester. The platform will be supported by three MAP’s running e-commerce portals, which are planetsports, lineshoes, and LiverpoolFC Indonesia Official Store.

PT Sumber Alfaria Trijaya Tbk (AMR) launched its retail website called alfaonline by injecting Rp 12,5 billion through its subsidiary, PT Sumber Trijaya Lestari.

PT Panorama Sentrawisata Tbk (PANR) builds its brand in digital world through the help of a number of ticket reservation portals, including BookPanorama, Panorama-Tours, MyHotelFinder, Travelisious, and PHM.

PT Surya Semesta Internusa Tbk (SSIA) in property sector diversified its business to tourism through PT. Horizon Internusa Persada (Travelio) whose vision is to be the best online hotel platform in Asia Pacific, including in Indonesia.

PT Elang Mahkota Teknologi Tbk (EMTEK), TPG capital, and SquarePeg Capital which took part in PropertyGuru’s investment worth 175 million Singaporean Dollar.

Emtek has invested at two e-commerce players, which are BukaLapak and Bobobobo.

PT Erajaya Swasembada Tbk (ERAA) and PT Trikomsel Oke Tbk (TRIO) are in telecommunication distributor sector. Erajaya targets the market through its Erafone, while Trikomsel established a special division called Trikomsel Internet Media Incorporated (TIMI). Moreover, the company also plans on forming a joint venture with SingPost E-Commerce, Singapore Post’s subsidiary, to develop an e-commerce service in Indonesia.

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89 https://en.dailysocial.net/post/eight-indonesian-giants-start-entering-e-commerce-industry
The Indonesian government has tried to bring the country’s e-commerce industry forward through a variety of means, not all of them successful.\(^90\) E-commerce Legislation Draft, issued by the Ministry of Trade which went into public testing, drew negative responses from e-commerce players. Through this draft, the government claims to support the growth of the e-commerce industry in Indonesia while protecting the players in it.

Although the Ministry of Trade claimed that it has shared the draft with the public and relevant associations; idEA, the association for e-commerce players, denied that they received it. One of the articles included in the draft states that whoever wants to be an online merchant or shopper must go through a verification phase commonly called KYC (Know Your Customer).

In brief, this KYC process requires online merchants and shoppers to verify their data by inputting their ID and TIN Number. Everytime you want to sell something at Tokopedia, Bukalapak, Kaskus or OLX, you must verify your citizenship by providing your ID/TIN Number.

The same thing applies every time a customer wishes to purchase something from the aforementioned e-commerce players. The Ministry of Trade does so to enable tracking each and every online transaction, while monitoring the tax that may potentially take place, as well as protecting consumers from online fraud. Consumers who feel this is too much may still go to AliExpress, Amazon, eBay or other websites that aren’t included in the regulation’s scope.

It is predicted that e-commerce players whose services are within the regulation’s range, will choose to move their entity abroad, probably Singapore, Malaysia, or other neighbouring countries which are free from such regulation, saying goodbye to ethics and patriotism.

\[2.6. \quad \text{Biotechnology}\]

\[\text{Health-tech in Southeast Asia: Emerging trends and enduring realities}\]\(^91\)

Wearables, telemedicine, remote care and more — global health-tech predictions and how they might play out in Southeast Asia

While much has been written on global health tech trends in recent years, relatively few studies have attempted to forecast their impact on Southeast Asia. One exception is Deloitte’s Healthcare and Life Sciences Predictions 2020, a November 2014 report that was later expanded with a supplemental Southeast Asia version.\(^93\)

Summary of Deloitte’s predictions from Southeast Asia perspective:

\[^{90} \text{http://e27.co/government-will-support-indonesian-e-commerce-industry-shutting-20150706/}\]
\[^{91} \text{http://e27.co/health-tech-southeast-asia-emerging-trends-enduring-realities-20150630/}\]
1. Healthcare consumer empowerment and engagement will increase in Southeast Asia too, but at a slower pace in the region’s developing markets, where medical paternalism remains strong. Patients there often view the words of their doctors or pharmacists as gospel, even as they recognise corruption and conflicts of interest that run rampant in healthcare systems. As incomes and education levels continue to rise and national healthcare programmes continue to bolster access, this situation may change, but gradually.

2. Telemedicine takes off and remote care becomes common. In Southeast Asia’s emerging markets, infrastructure gaps remain a major impediment to telemedicine, but as connectivity improves, many new telemedicine services are getting funding and traction. These services may prove to be a boon in the fight against treatable infectious diseases like tuberculosis and the expansion of health access to rural populations. However, questions linger as to what extent telemedicine can adequately compensate for ongoing health worker shortages, which remain a major challenge in the region.

3. Wearables, biosensors and mHealth become central to healthcare. These technologies will likely catch on in Singapore first. As an example of the new tools and services that are already being adopted there, Deloitte’s report mentions Silverline, a Singapore-based company that offers a suite of home monitoring systems, smartphone apps and analytics tools geared towards older adults. Beyond basic fitness trackers, however, uptake of more advanced wearables and biosensors has been less apparent in Southeast Asia’s emerging markets.

4. The power of Big Data in healthcare finally realised. In the developed world, the biggest challenge will be creating protocols for access and sharing of the vast quantities of data that already exist, but in Southeast Asia’s emerging markets, much of that data will need to be created in the first place. Hospital information systems, electronic medical records and other tools for managing health data are still just beginning to get deployed in places like Indonesia and the Philippines, but their inevitable adoption will create new opportunities for data analytics. Meanwhile, startups like mClinica are providing novel solutions for gathering data in fragmented healthcare markets.

5. Regulators finally catch up to all these changes. Southeast Asia still has a long way to go with regard to regulatory reform and harmonisation, though ASEAN-led initiatives may play a role in bolstering regional cooperation in the coming years. The ASEAN Consultative Committee on Standards and Quality has specific working groups for pharmaceuticals (PPWG), medical devices (MDPWG) and traditional medicine (TMHSPWG). Yet in a region beset by weak institutions, top-level policies and practices on the ground are likely to remain inconsistent for the foreseeable future.

2.7. Materials

Global Aerospace Applications Nanocoatings Industry 2015: Acute Market Reports

http://www.nanotech-now.com/news.cgi?story_id=51942
The report begins by introducing the Aerospace Applications Nanocoatings basics: definitions, classifications, applications and industry chain overview; industry policies and plans; product specifications; manufacturing processes; cost structures and so on. Then it analyzed the world's main region market conditions, including the product price, profit, capacity, production, capacity utilization, supply, demand and industry growth rate etc. In the end, the report introduced new project SWOT analysis, investment feasibility analysis, and investment return analysis.

The report includes six parts, dealing with: 1.) basic information; 2.) the Asia Aerospace Applications Nanocoatings industry; 3.) the North American Aerospace Applications Nanocoatings industry; 4.) the European Aerospace Applications Nanocoatings industry; 5.) market entry and investment feasibility; and 6.) the report conclusion.

2.8. Energy

Singapore has been a huge advocate of moving toward renewable energy and energy efficient technologies. The industrial landlord JTC Corporation is developing CleanTech Park to advance Singapore’s position as an innovative clean technology and sustainability hub in the global marketplace. CleanTech Park (CTP), a 50-ha eco-business park, will be a test bed to stretch the boundaries of sustainable technologies, including green building and system-level clean tech solutions. CTP is set for completion in 2030.

Organized by the National Research Foundation under the Prime Minister Office, TechVenture will feature keynotes on clean energy trends, the convergence of healthcare and information technology as well as various clean energy tracks.

Experts cite potential of solar energy development in Philippines

The Philippines has strong potential in harnessing solar energy, both for consumer use and power production, given the continued drop in prices and further innovation in the field, officials said in a forum Wednesday.

The country is more than ready to join the solar revolution as it is nestled in the tropical zone, Schneider Electric senior vice president for solar business Serge Goldenberg said in his keynote speech at the Philippine Solar Summit held in Pasay City.

“The archipelagic geology of the Philippines poses unique challenges in distributing energy produced from solar plants, but aside from that, adapting a solar energy system for the country is not far-fetched,” Goldenberg said.

The country implemented the feed-in tariff scheme in 2012, which provides incentives to developers of RE.

Neeraj lauded a recent Energy Regulatory Commission (ERC) circular, which classified battery energy storage as a new source of ancillary services or reserve power.

Under the circular, the ERC adopted the Grid Management Committee’s recommendations classifying the so-called battery energy storage system (BESS) as a new source of frequency control ancillary services, particularly contingency reserve and secondary reserve.

AES Philippines, the local unit of US energy giant AES Corp., is currently developing the first 40-megawatt (MW) battery storage facility in Negros Occidental. It is also offering its energy storage batteries as a possible long-term solution to the power situation in the country.

From a consumer point of view, Goldenberg said global prices of solar photovoltaic (PV) or panels have dropped 52 percent from 2008 to 2015.

Along with this trend, a study by the International Energy Agency showed solar could outpace fossil fuels, wind, hydro and nuclear to become the world’s largest source of electricity by 2050.

Aurora Partners Pte. Limited, a joint-venture company of Juwi Renewable Energies Pte. Ltd and Asia Green Capital Partners Ltd., is targeting to develop 50 megawatts (MW) of solar capacity within the next two years.

Juwi Southeast-Asia project development manager Donald Gautier said project construction will be completed by either 2016 or 2017 – to meet the next feed-in-tariff (FIT) round that mandates a target capacity. The solar projects are under development, with one of the projects in the advanced stages due to its signed power sales contract.

Gautier said the development cost for the project would start at US$0.5 million, along with the raising of US$7 million in equity from the World Bank and the International Finance Corporation (IFC). Part of the US$7 million will also be used to develop projects in other parts of Asia.

Last June 24, Juwi and Asia Green Capital Partners established Aurora Partners Pte Ltd. to develop solar photovoltaic projects in South Asia, namely Indonesia, India, Thailand, Malaysia and the Philippines.

### 2.9. Logistics

Thailand-based ecommerce service provider aCommerce had closed its series A venture capital round of US$10.7 million in June 2014. Organized by its founding investor, Ardent Capital, the round was led by Bangkok-based Inspire Ventures with participation from NTT Docomo, Sumitomo Corporation Equity Asia Limited, Sinar Mas Indonesia, Asia Pacific Digital, CyberAgent Ventures, JL Capital, strategic angel investors, and key executive staff. In July 2015 aCommerce downsizes in Singapore to avoid bloodbath, stating that for ecommerce and logistics companies, battling in Singapore can be an all-out war.

The company has ceased logistical operations in Singapore, while keeping on board a sales and marketing team. aCommerce is also working on transferring some of its clients to other fulfillment services.

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aCommerce states that Singapore doesn’t make sense for aCommerce from a revenue perspective. For the most part, the country is an incredibly competitive market for both logistics and e-commerce. It described it as a bloodbath where it was engaged in a price war with SingPost, the country’s national postage service that has its toes in logistics, as well as other players like TA-Q-BIN. Anchanto is another startup competitor in the Singapore market.

After speaking to clients, the CEO was alarmed to learn that even large retail players hesitated to put money into Singapore not just because of its small population, but also because it’s a mature market where returns are minuscule. “You can put one million dollars in and get only one percent market share,” he says. Even Lazada, an online retail site started by the well-funded Rocket Internet, entered Singapore last after opening in surrounding markets. Then there’s cost: doing business in Singapore is expensive. Singapore makes sense as a regional HQ where international companies make decisions for Southeast Asia, large retailers are really only interested in consumers from bigger markets like Indonesia, Philippines, Thailand, and Vietnam. aCommerce had a hypothesis when they went into Singapore and hired a logistics team: they would pitch the region but cross-sell Singapore, and customers would bite. Turns out they weren’t that interested.

**Businesses can adopt useful technology to be competitive: Lim Swee Say**

Businesses can be early adopters of useful technology to be competitive in a "new economic landscape", said Manpower Minister Lim Swee Say on Monday (Jul 27).

During a memorandum of understanding (MoU) signing event between logistics company YCH Group and the Singapore Workforce Development Agency (WDA), Mr Lim said Singapore's economy is going through a transition to become leaner on manpower, with a stronger Singaporean core and a better quality foreign workforce.

YCH Group has invested in a state-of-the-art warehousing facility to become less reliant on manpower.

YCH Group considers Radio Frequency Identification (RFID) tags as an enabler technology. RFID technology is not new, but the way YCH has developed and is implementing it is a first for the industry - from tagging the items in retail stores, to the ordering, right up to the delivery, the company said.

It added the technology is ready to be rolled out, and is working with SMEs in implementing RFID. The company has a staff strength of about 500 in Singapore.

YCH is also working with WDA and tertiary institutions like Republic Polytechnic to develop its staff here. For the next three years, it will be participating in the WDA-led SkillsFuture Earn and Learn Programme for logistics, it said. Under this programme, fresh graduates from the Institutes of Technical Education (ITEs) and polytechnics are recruited to take up jobs in the company, and offered a structured career progression pathway.

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2.10. AeroSpace

Aerospace materials market projected to reach $18.5 billion by 2019 99

The aerospace materials market is projected to register a CAGR of 6.6% between 2014 and 2019 to reach $18.5 billion in terms of value.100

Global aerospace materials market is projected to register a CAGR of more than 6.6% between 2014 and 2019 to reach $18.5 billion in terms of value.

Aerospace materials are used for building various parts of the aircrafts. Various materials such as aluminum alloys, steel alloys, titanium alloy, super alloys and composite materials are used for building aircrafts. Aluminum alloys accounts for nearly 50.0% of the market in terms of the volume, however it represents only around 25.0% of the market in terms of the value. Demand for aluminum alloys is expected to remain flat between 2014 and 2019, but increasing usage of the composite materials and titanium alloys in the new generation of the aircrafts is expected to surge the demand for these materials in the near future. Major advantage of using composite materials and titanium alloys is the light weight of these materials and comparative strength of these materials to the traditionally used metals such as aluminum and steel alloys. Composites enable aerospace manufacturers to produce structural components to substitute conventional metal solutions. Shorter cycles for the manufacture of components, corrosion resistance and superior performance at elevated temperatures are some of the major advantages offered by these new aerospace materials.

Large numbers of raw material suppliers are active in the aerospace materials market, . The degree of forward integration is also low. However, presence of patented technology with some major suppliers required in specific aerospace application boosts the bargaining power of suppliers.

The Asia-Pacific is projected to witness high growth rates during the forecast period (2014-2019). The aerospace materials market in Europe and North America is consolidated, whereas the market in Asia-Pacific has a fragmented structure; China and Japan alone have a large number of aerospace material suppliers, these numbers are expected to increase due to the number of mergers and acquisition and expansion by some major players taking place in the region. Rivalry in the aerospace industry is expected to decrease during the forecast period.

Flight management system market growing, predicted to reach $912 million by 2020101

The global market for flight management systems (FMS) will reach $912.20 million by 2020, growing at a compound annual growth rate (CAGR) of 7.19 percent, from $601.36 million in 2014, predict analysts at marketsandmarkets.

100 http://www.marketsandmarkets.com/Market-Reports/aerospace-materials-market-266342713.html#whatech.com/75595
Flight management systems can be classified into four segments according to the cockpit architecture of different types of commercial aircraft, including very large aircraft, wide body aircraft, narrow body aircraft, and regional transport aircraft. All these aircraft are equipped with two flight management systems that perform the ideal functions. The average cost of a flight management system differs according to the functional and performance parameters required by different aircraft. The FMS market in a particular region depends upon the number of aircraft deliveries in the said area, as well as the aircraft maintenance activities in that particular region.

The latest marketsandmarkets report -- "Flight Management System Market by Cockpit Architecture (VLA, WB, NB, and RTA), Hardware (FMC, CDU, and VDU), Maintenance (Line-fit and Retrofit) & by Geography (North America, Asia-Pacific, the Middle East, and Europe) - Forecast Analysis to 2014 – 2020" – indicates that Asia-Pacific had the largest market with 36.76%, followed by Europe with 23.86%, and North America with 19.92% in 2013.

Despite the slow global economic growth and increase in aircraft fuel cost, the demand for new aircraft deliveries will swell and the demand for flight management systems will intensify, being a subset of an aircraft.

The retrofit market of flight management systems for wide body aircraft is estimated to grow at a CAGR of 9.96% from 2014 to 2020, according to marketsandmarkets analysts. The growing demand for aircraft deliveries and continuous increasing passenger traffic across the world is the prime region for this growth. However, there are many challenges involved in equipping new flight management systems in the cockpit of an aircraft, such as the presence of a long development life cycle from equipment design to certification of FMS, and the need for well-developed testing and certification programs. The retrofit FMS designs need to follow the same rigor as the originally developed systems on the aircraft. Also, its proper integration must take into account all of the constraints and dependencies while interfacing with existing equipment.

The flight management systems market for narrow body aircraft is estimated to grow at a CAGR of 7.18% from 2014 to 2020. The Asia-Pacific region is projected to dominate the FMS market in this category; it holds the maximum share of the flight management system for wide body aircraft, but the Middle East is the fastest growing region in this segment.

The rapidly increasing passenger traffic rate across the world will require safety operations of the fleets that operate in this region. The NextGen FMS is capable of adhering to those safety needs by automating flight operations that include flight plan and fuel management that are very necessary for the regional transport aircraft. These factors will raise the market growth of FMS in this segment.

The report contains profiles of leading players involved in this market, such as Honeywell, Thales SA, GE Aviation, Rockwell Collins, and Jeppesen. The report takes into account a wide range of factors and its influence on the market dynamics. Increasing investments in R&D, coupled with an information flow for requirement analysis will help the market move at a steady pace.
Malaysia to play major role in international aerospace industry with Asia Aerospace City (AAC)\textsuperscript{102}

Asia Aerospace City (AAC) stands for the global aerospace standard in connecting aerospace players worldwide with the opportunity for growth in Asia. AAC is fully supported by the Malaysian government and bridges the space between the technical competence and the engineering facilities required by the top industry players. AAC offers a complete business ecosystem through its high-quality engineering services, industry-relevant human capital, iconic infrastructure, and government support. To the largest Original Equipment Manufacturers (OEMs) in the world, it is a competitive hub for industrial talent, cost efficiency, connectivity and resources.

Asia Aerospace City (AAC) is a strategic initiative to catapult Malaysia into a major role in the international aerospace industry, which is expected to grow to over USD$1 trillion by 2020. \textit{AAC is an aerospace hub} that serves to combine the capabilities, assets and aerospace players worldwide with the opportunity for growth in Asia, with Subang nexus serving as the foundations of its physical infrastructure.

The Subang nexus site has a total area of 19.8 acres with a view to expand and include an additional area of 56 acres, which is owned by Malaysia Airports Holdings Berhad (MAHB). The core site is located about 23km due south-west of the city centre of Kuala Lumpur. It adjoins the Sultan Abdul Aziz Shah Airport (SAAA). Subang and lie alongside the northwestern flank of Jalan Lapangan Terbang Subang within Section U3, Shah Alam, in the Mukim of Sungai Buloh, District of Petaling, State of Selangor Darul Ehsan. SAAA was the main airport serving Kuala Lumpur before the opening of Kuala Lumpur International Airport (KLIA) in 1998, now known also as the Subang nexus, it serves as the main hub for Firefly and Berjaya Air, as well as a major regional centre for aerospace maintenance, repair, and overhaul (MRO) operations, and many engineering firms. Companies can participate in the AAC and receive the services independent of being based in the Subang nexus, but the nexus offers many advantages. There are plans to develop other sites under the AAC branding. The nexus serves as the foundations of AAC’s physical infrastructure.

AAC is conceived as a “smart city”—a vast integrated complex that is part academic campus, part business park, incubation and innovation centre, research and technology park, virtual reality and pilot testing facility, residential space, and convention centre.

AAC is building a strong aerospace value supply chain framework to serve the requirements of enhanced manufacturing abilities and speed for Tier 1 organisations, under direct supervision from the OEMs.

M-AeroTech as a wholly owned subsidiary of MARA acts in line with the strategies of the Government of Malaysia. It is committed to invest in Key Strategic Partnerships towards continuous technology transfer and developing a supply value chain to support the aerospace manufacturers in a cost efficient and abled manner.

\textsuperscript{102} \url{http://www.marcopolis.net/malaysia-to-play-major-role-in-international-aerospace-industry-with-asia-aerospace-city-aac.htm}
AAC is owned by Majlis Amanah Rakyat (MARA) — “The Council of Trust for the People,” — a Malaysian government agency for education and entrepreneurship under the purview of the Ministry of Rural and Regional Development. MARA has been developing Malaysian human capital since 1967 and supplies no less than 30% of the nation’s human capital.

MARA operates AAC through its fully owned subsidiary, MARA Aerospace & Technologies Sdn Bhd (M-AeroTech), while Pelaburan MARA, which was established on June 24, 1967 as an investment arm of MARA and is principally involved in strategic investment and fund management activities, will provide its international expertise and profound local know-how to help unlock more opportunities in the market in the future.

MARA through AAC, provides:

- Sustainable and industry-relevant human capital to address the competency gap experienced by the industry currently.
- Ease of doing business by facilitating business formation and smooth operation by offering business set-up solutions, coordination with and access to the relevant Malaysian Government’s agencies and authorities.
- Industry insights and information allowing analysis of market fundamentals, enabling companies to strategise for growth, leading to sound decisions.
- Engineering Services supported by Strand Aerospace Malaysia offering high quality and affordable Engineering & Management Design, Analysis & Certification solutions. Delivering primary aero structures analysis covering: static, fatigue and damage tolerance, F&DT, finite element, composite, design, in-service support, and aircraft structural integrity for OEMs such as Airbus, BAE Systems, Spirit Aerosystems, Messier-Dowty-Bugatti etc.
- R&T: fully equipped and organised incubation facilities to research and bring technology preparedness, to support the growth of the Engineering & Management industry. This is through strategic OEM partnerships to ensure technology development is in line with global industrial needs, such as the partnership between Aerospace Malaysia Innovation Centre (AMIC), Airbus Group and Rolls Royce.

AAC envisages six strategic business units: a business consulting centre, engineering services, a professional development centre, research and technology, investment, and infrastructure.

The key functions of the development are arranged in clusters; an academic node with the Malaysian Institute of Aviation Technology and a 2,000-student capacity; a professional development centre; a research and training centre; an event node with a convention centre, a business hotel and various event functions; and supporting infrastructure including restaurants, leisure amenities, and social spaces.

**Singapore's New Drone Regulations**

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103 [http://thediplomat.com/2015/06/singapores-new-drone-regulations/]
The Civil Aviation Authority of Singapore (CAAS) launched an online portal for operators of unmanned aircraft – popularly known as drones – to apply for necessary permits.

The portal would serve as a ‘one-stop’ destination for permit applications to streamline the process for doing so. CAAS would be responsible for processing the applications and coordinating with other relevant agencies where needed.

The move comes after Singapore’s parliament passed new laws regulating the use of unmanned aircraft last month under the Unmanned Aircraft (Public Safety and Security) Bill, which amended the Air Navigation Act and Public Order Act. As has been the case with other countries, Singapore has moved to regulate drones as their growing popularity has raised safety, enforcement and privacy concerns in the city-state.

According to the CAAS website, two permits – an operator permit and an activity permit – are required for flying drones that weigh more than 7 kilograms (15.4 pounds) for any purpose. Those who fly drones for business purposes will need both permits regardless of the weight of the aircraft.

In contrast, those who do so for recreation or research do not require a permit if the weight of the aircraft is less than 7kg. However, an activity permit would be required if the unmanned aircraft is flown outdoors in a restricted or danger area or within 5km of a military base regardless of operating height. If drones are flown indoors at a private residence or indoor area and the flying does not affect the general public at all, no permits are required.

CAAS also notes that additional permits would be needed if items are dropped from the unmanned aircraft, if radio frequencies and power limits used for operating the aircraft do not comply with the guidelines of the Infocomm Development Authority of Singapore (IDA), if the aircraft is flown over protected or special event areas, or if photographs are taken in protected areas. A list of such areas has been drawn up, and they include the Istana, Parliament House, Supreme Court, and various government buildings, military camps and bases.

The expected processing time for an application is two weeks. Operator permits are valid for up to a year, while activity permits are valid for a single activity or single block of repeated activities.

3. Government Sponsored Programmes and Opportunities

IDA hands funds to promising Singapore startups

The Infocomm Development Authority of Singapore’s (IDA) Accreditation@IDA programme has provided about S$20 million ($14.6 million) worth of project opportunities for promising Singapore-based tech firms.

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104 http://www.telecomasia.net/content/ida-hands-funds-promising-singapore-startups
As of July 2015, these opportunities include a pipeline of 125 projects with 50 government agencies; of which six projects have already been awarded to five of the accredited companies - KAI Square, Inspire-Tech, Latize, Tagit and Trakomatic. These companies have won projects from the Ministry of Manpower, Housing & Development Board, JTC Corporation, Economic Development Board, Sentosa Development Corporation and IDA. Another six projects are at the final stages of procurement and close to being awarded.

The Accreditation@IDA programme helps grow young and promising Singapore-based companies with innovative tech products. It helps companies build their credentials to in a better position to win projects from government agencies and large enterprises, and possible growth overseas.

The comprehensive evaluation by IDA ensures that only companies with innovative products and well-defined business plans are accredited.

Since the program’s launch in July 2014, IDA has accredited eight companies and is looking forward to having a total of 20 accredited companies by March 2016. One of the plans is to expand the scope of the accreditation to encompass technologies that are relevant to achieve Singapore’s Smart Nation vision, including robotics, new sensor technologies and autonomous vehicles.

“Just a year ago, we laid out a huge challenge to our team in IDA – How can we support these companies in meaningful ways that can grow their business, and bring new innovation into government services? The Accreditation@IDA was launched and we have seen good results in various aspects so far,” said Steve Leonard, executive deputy chairman, IDA.

The regulator also plans to expand the scope of accreditation to include technologies such as robotics, sensors and autonomous vehicles. Currently, the programme centres on innovative enterprise products with a focus on software.

**Video Analytics Tech Challenge**

Date: 28 Jul 2015 - 20 Nov 2015

The Video Analytics Challenge is the first of a series of IDA Tech Challenges that will be initiated to encourage individuals, academia from universities and polytechnics, research institution and businesses to come forward with innovative technology ideas or solutions to tackle urban challenges. It aims to inspire and push the boundaries of tech innovation, build intellectual property (IP) and create commercially viable solutions that address real-world problems.

iDA is calling everyone skilled in video analytics to join its inaugural Video Analytics Tech Challenge and to push the limit and develop video analytics algorithms to address urban challenges for Smart Nation. This is a 2-stage challenge that spans over a period of 5 months.


With up to S$75,000 worth of cash prizes to be won, this challenge is open to all Singapore-based tech companies, the Institute of Higher Learning, Research Institutes and individuals.

Winners may be selected for subsequent development and piloting opportunities for Smart Nation.

**Smart Port Hackathon 2015**

The Port of Singapore is the world’s busiest transhipment hub, handling about one-seventh of the world’s container transhipment throughput (31 million TEUs in 2013) and more than 500 million tonnes of cargo annually. It is also a thriving eco-system of maritime and port services that involves 5,000 organisations across the Singapore business landscape, employing 170,000 people and contributing 7% of Singapore’s GDP.

Hackathon address the need in leading logistics and supply chain management expertise will enable the development of more specialised hubs. Leveraging technology, creating synergies, providing seamlessness and reliability in information flows and operational processes among the many stakeholders.

This year’s hackathon gathers the range of stakeholders in the maritime supply chain to explore new innovations to improve efficiency of the industry and increase Singapore’s competitiveness.

Hackathon presents opportunity for students, industry professionals, start-ups/ SME or multinational:


- **Singapore Maritime Trails:** Saturday, 1 August
- **Data & Tech Workshop:** Wednesday, 5 August; Venue: Block T4A, Singapore Polytechnic
- **Industry Workshop:** Wednesday, 12 August; Venue: Block T4A, Singapore Polytechnic
- **Smart Port Hackathon 2015:** Fri-Sun, 14-16 August; Venue: Block T4A, Singapore Polytechnic

**Branding and marketing pitch for its Digital Inclusion (DI) programme.**

The Infocomm Development Authority of Singapore (IDA) has called for a branding and marketing pitch for its Digital Inclusion (DI) programme.

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The account is for a period of one year. According to a brief seen by Marketing, the main objective of the pitch is for the IDA to “strengthen the DI brand by unifying all the initiatives and tie the programme back to the IDA to create better brand awareness and recall for DI and IDA.”

The brief stated that previous DI initiatives that had created “unique logos” for the programme have resulted in poor brand recognition for IDA.

As such, the appointed agency is expected to help IDA link “the various initiatives’ logos and designs in some way without having to change each individual logo”. It will be tasked to conceptualise and develop all visual communications (typography, colours, design, illustrations, iconography etc.) and produce a simple brand identity guide.

Further, the awarded tenderer has to create a new DI brand concept that is able to communicate to the target audience that ICT is fun and that the brand should “depict vibrancy, happiness and friendliness”.

On top of branding and marketing collaterals, the appointed agency will produce a total of 20 “People of Singapore” videos and photos, as well as a “Passport to Better Living” booklet. The tender closes on 27 July 2015.

**Data-Driven Innovation (DDI) Challenge for Institutes of Higher Learning (IHLs) 2015**

**Date: 01 Jul - 29 Oct 2015**

Data-Driven Innovation (DDI) Challenge for Institutes of Higher Learning (IHLs) 2015 will contribute ideas of how data can be innovatively used in mashups to address or provide insights to key challenges faced by Singapore today and win exciting prizes sponsored by Amazon Web Services (AWS) and IDA Singapore.

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