Southeast Asia (SEA) is the third largest contributor to the Asia Pacific economy after China and Japan. Strong underlying social-economic trends underpin the demand for real estate in this region. SEA economies are forecast to grow at 5% annually till 2020, exceeding global growth of just 3.52%. Urban population in SEA cities is growing by c.2.2% annually and the middle income population is increasing by 70 million or 9% CAGR by 2020.

The fourth industrial revolution is characterized by the fusion and amplification of emerging technology breakthroughs in artificial intelligence, automation and robotics, multiplied by the extreme connectivity between billions of people with mobile devices with unprecedented access to data and knowledge. The sharing economy makes more with less and allows crowdsourcing of information and resources for the benefit of the wider population. We believe changes in the next 5-10 years will raise efficiency, productivity and income levels and improve the quality of life globally.

These technological advances will affect the way people work, play, live and move in Southeast Asia. In many ways, the new capabilities allow people to bypass existing infrastructure and developmental constraints and leapfrog into the future. The impact on real estate is likely to be positive and transformational.
In this report, we highlight real estate trends in SEA that could unfold in the next 5 to 10 years.

**Work: How we will work differently and the impact on office space**

We expect automation and artificial intelligence to eliminate some jobs globally but new jobs are likely to be created. We expect flexible working, outsourcing and co-working spaces to accelerate in the next five years. In developed cities, co-working and serviced office spaces currently take up 1-5% of total office stock but could grow to 20-30% by 2030. While office demand growth globally has slowed after the global financial crisis, SEA has bucked the trend, with demand growing 20% faster. We expect office demand in SEA to grow at 6% p.a. till 2020 due to economic growth, further acceleration of outsourcing from developed markets and the rise of the middle class. We see strong growth in Manila and Kuala Lumpur.

**Play: How we will shop differently and the impact on retail space**

Globally, smartphone penetration has changed the way we shop. In developed markets, online sales already make up 5-15% of total retail sales and retail space per capita has peaked. In SEA, despite low urbanisation and internet line connections, 50-90% of consumers outside of tier-1 cities have used mobile phones to shop online. As retail space provision is still low in Bangkok, Jakarta, Manila and Vietnam, we expect demand for new stores to grow. Outside of SEA tier-1 cities, demand for regional malls will grow as incomes rise, especially as customers show strong preference for cash payments and customer pick up instead of home delivery.

**Live: Sharing our homes**

We estimate that home-sharing platforms like Airbnb and Homeaway now account for 10% of occupied room nights in top global gateway cities and this could rise to 15% by 2020. In SEA, home-sharing platforms in Singapore, Bangkok and Kuala Lumpur make up about 2% of occupied room nights, potentially growing to 5% by 2020. If regulations are relaxed to allow short term stays in residential sites within central locations, residential land prices in these locations could rise.

**Go: Smart traffic management, car sharing, autonomous driving, mass transit and our cities**

Globally, new technology that enables intelligent traffic management, car-sharing and autonomous driving are expected to ease congestion and enhance mobility. In SEA, traffic congestion in most cities is severe due to lack of investments in mass rail transit and caps on car ownership. Online platforms like Waze, Grab and Uber have increased their penetration and allowed the use of mobile phone data to leapfrog state efforts in traffic management. Mass rapid transit projects under construction in Singapore, Kuala Lumpur, Bangkok, Manila and Jakarta will increase rail length by 50% by 2020, increasing use of public transport. We expect commercial properties at the interchanges of these new rail lines to outperform.
Chapter One

Work: How we will work differently and the impact on office space

• Technological advances such as mobile internet, automation and cloud computing will further enhance companies’ ability to implement outsourcing, flexible working and co-working. Globally, the WEF expects fewer office and administrative jobs in high income cities, but a gain in employment in emerging markets due to economic growth, outsourcing and the rise of the middle class.

• Outsourcing has already contributed to strong office demand in emerging markets while reducing office net absorption in developed markets. Emerging technology is likely to further enhance companies’ ability to outsource work to regions such as SEA in the next five years and new locations could emerge. While office demand growth globally has slowed after the global financial crisis, SEA has bucked the trend, with demand growing 20% faster. We expect office demand in SEA to grow at 6% p.a. till 2020 amid economic growth of 5%. For SEA cities outside of Singapore, office space per capita is still low.

• Co-working and serviced office space currently takes up 1-5% of total office stock in developed cities and is growing at c.10% p.a., as a result of the sharing economy, flexible working and free-lancing. This implies that co-working and serviced offices could take up 20-30% of these cities’ office stock by 2030. Large co-working spaces in Europe are integrating large tenants like Google and Twitter together with small start-ups in the same location with success.

• Co-working spaces in SEA make up less than 1% of total office stock and could grow to 10-15% of office stock by 2030. Philippines is third largest earning country in free-lancing in the world with 1.3 million registered users in Upwork. Vietnam and Malaysia could grow in this area in the next 5 years.

• In the next five years, we expect strong office take-up in Manila and Kuala Lumpur.
Outsourcing to further enhance office demand in emerging markets

The mobile internet, cloud computing, business process as a service (BPAS) are further enhancing organisations’ ability to outsource more functions to other lower cost countries or external contractors. We believe outsourcing has already contributed to strong office demand in emerging markets including India, Poland, Philippines and China while reducing net absorption in developed markets.

Global office space demand grew at 3% p.a. before the global financial crisis, with US and Europe growing at 2.5% while Asia Pacific was growing at 8.7% per annum. Since the global financial crisis, office demand has halved in US and Europe and fell 25% to 6.6% p.a. in Asia Pacific.

Southeast Asia has bucked the trend, with office demand growing at 4% p.a. before the global financial crisis but this rose to 5% p.a. in the last five years. Excluding Singapore, this is close to 6% per annum. In the next 5-10 years, we expect office demand in developing SEA (excluding Singapore) to grow at 6% per annum, given annual GDP growth of c.5% (Chart 1).

In Southeast Asia, office stock per capita is still low. Singapore is comparable to other global financial hubs such as New York, London and Sydney. In Kuala Lumpur, Bangkok and Manila, office demand is expected to grow as more population moves to the cities and take on services jobs. Foreign direct investment and outsourcing from developed markets to developing countries could also boost demand (Chart 2).

Chart 1: Global office demand growth

<table>
<thead>
<tr>
<th>Region</th>
<th>2005-2008</th>
<th>2010-2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>2.4%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Europe</td>
<td>2.7%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Asia Pacific</td>
<td>8.7%</td>
<td>6.6%</td>
</tr>
<tr>
<td>ASEAN</td>
<td>4%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Global</td>
<td>3.0%</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

Source: JLL

Chart 2: Office stock per capita

<table>
<thead>
<tr>
<th>City</th>
<th>Stock per Capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney</td>
<td>2.09</td>
</tr>
<tr>
<td>New York</td>
<td>2.05</td>
</tr>
<tr>
<td>London</td>
<td>1.49</td>
</tr>
<tr>
<td>Singapore</td>
<td>1.37</td>
</tr>
<tr>
<td>Jakarta</td>
<td>0.72</td>
</tr>
<tr>
<td>KL</td>
<td>0.64</td>
</tr>
<tr>
<td>Bangkok</td>
<td>0.58</td>
</tr>
<tr>
<td>Manila</td>
<td>0.43</td>
</tr>
</tbody>
</table>

Source: JLL
More flexible working to result in lower office space per worker

Within organisations, mobile technology and teleconferencing are allowing more employees to work remotely or use hot-desking. Office space per person set aside in new office leases in SEA have fallen by 20% over the past 10 years due to hot desking and remote working. We expect this to decline by 5% to 7-11sqm per office worker by 2020. Change usually coincides with periodic office relocations or expansions (Chart 3).

Co-working spaces to grow and attract large and small companies

With more enabling platforms and the sharing economy, the number of independent workers or freelancers is rising globally. Increasingly, contractor positions are held by the best and brightest, including professionals like attorneys and consultants. Data in Europe and the US show that the number of independent workers and freelancers has increased by 5-10% p.a. in the last 5 years, partly due to the rise in unemployment and partly due to the rise in the sharing economy. Government statistics estimate that around 20-30% of the workers in these developed markets are independent workers or freelancers.

For developing markets such as Philippines and India, online freelancing is a growing trend. According to Upwork, the Philippines is the third highest earning country in the world in terms of freelancing and the third largest freelancer group in the world, with 1.4 million registered users in Upwork (as of June 2015). Majority of online jobs taken by Filipinos are in administrative support, sales and marketing, and customer service (Chart 4).

JLL estimates that current co-working and serviced office space make up 1-5% of global cities’ office stock but is growing at c.10% p.a. These spaces provide a sense of community for independent workers

---

Chart 3: Estimated office space per worker for new office leases

<table>
<thead>
<tr>
<th>Location</th>
<th>2005</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singapore</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>KL</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Jakarta</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Bangkok</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Manila</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

Source: JLL

Chart 4: Number of Online Freelancers per Country, 2014

<table>
<thead>
<tr>
<th>Country</th>
<th>Freelancers</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>2,300,000</td>
</tr>
<tr>
<td>Philippines</td>
<td>1,284,25</td>
</tr>
<tr>
<td>Mainland China</td>
<td>61,570</td>
</tr>
<tr>
<td>Singapore</td>
<td>39,230</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>10,480</td>
</tr>
<tr>
<td>India</td>
<td>1,900,000</td>
</tr>
<tr>
<td>Indonesia</td>
<td>101,520</td>
</tr>
<tr>
<td>Vietnam</td>
<td>39,390</td>
</tr>
<tr>
<td>Thailand</td>
<td>20,780</td>
</tr>
<tr>
<td>Taiwan</td>
<td>4,950</td>
</tr>
</tbody>
</table>

Note: Figures refer to the total number of registered freelancers in Upwork, formerly Elance-Odesk. Source: Forbes.com

Chart 5: Co-working space as proportion of total office stock (JLL estimates)

<table>
<thead>
<tr>
<th>Region</th>
<th>2015</th>
<th>2020E</th>
<th>2030E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed</td>
<td>1-5%</td>
<td>5-10%</td>
<td>20-30%</td>
</tr>
<tr>
<td>SEA</td>
<td>0.5-1%</td>
<td>1-5%</td>
<td>10-15%</td>
</tr>
</tbody>
</table>

Source: JLL
as well as support and infrastructure including human resources, web consulting, accounting and even crowd-sourced health insurance. These services may even come from other freelancers. We expect this to grow to 5-10% of developed markets’ office stock by 2020 and 20-30% by 2030. In SEA, co-working space is estimated to make up less than 1% of office stock, but could grow to 10-15% by 2030 (Chart 5).

All tenants great and small
In Europe, co-working spaces are attracting large and small tenants into the same space to spur creativity and a dynamic environment. In London, Argent transformed One and Seven Pancas Square at Kings Cross into a co-working space attracting tenants including Google, the Jamie Oliver Group and Louis Vuitton, together with The Office Group. Factory Berlin is a 16,000sqm campus with work space where tenants of Soundcloud, Twitter, Uber and Google mingle with small start-ups.

Key cities to watch
Manila
Office demand in Manila has been exceptionally strong due to the rapid expansion of the Business Processes Outsourcing industry. Demand increased by 12% p.a. since 2010 outstripping annual GDP growth of 5% (Chart 6).

While office supply in Metro Manila is high in 2015-2017, demand has grown in tandem. Occupancy rates have stayed above 90% and rents have increased moderately (Chart 7).

Kuala Lumpur
We expect demand for office space to be strong, growing at 6% p.a. in Kuala Lumpur in 2016-2020. While demand from oil and gas companies could weaken, we think financial services, technology and business services are likely to pick up the slack. We see large-scale developments going on in both KL CBD and decentralized areas. (Refer to Map) In recent years, decentralization of office locations has taken place and we expect this trend to continue over the next 5 years with the improved connectivity and better infrastructure within Klang Valley. Tenants in the technology sector that are likely to gravitate towards decentralised office locations.
Kuala Lumpur Megaprojects

Naza KL Metropolis
Developer: Naza TTDI
GDV: RM15 bil
Site: 76 acres
Expected completion: 2025

KL 118 (Warisan Merdeka)
Developer: PNB
GDV: RM6 bil
Site: 19 acres
Expected completion: 2020

PJ Sentral
Developer: MRCB
GDV: RM15 bil
Site: 76 acres
Expected completion: 2020

TRX
Developer: 1MDB
GDV: RM40 bil
Site: 70 acres
Expected completion: 2017 (Phase 1)
2027 (Final)

KL Eco City
Developer: S P Setia
GDV: RM7 bil
Site: 25 acres
Expected completion: 2017 (Phase 1)
2017 (Phase 2)

BBCC
Developer: Eco World, UDA & EPF
GDV: RM8 to RM10 bil
Site: 19.4 acres
Expected completion: 8-10 years

Source: JLL
Drivers of change in the way we work

The World Economic Forum (WEF) Jobs report states that the key trends affecting employment till 2020 are (1) flexible working and outsourcing, (2) mobile internet and cloud technology (3) advances in computing power and big data and (4) rise of the middle class in emerging markets. Globally, the WEF expects fewer office and administrative jobs in high income cities, but a gain in employment in emerging markets in computing, engineering and financial and business management.

The World Economic Forum (WEF) Jobs report surveyed 371 companies which employ over 13 million people. 23-44% of the respondents expect the trends of flexible working, mobile internet, big data and rise of the middle class in emerging markets to have already impacted or impact the way we work in the next 3 years globally (Table 1).

Most of the respondents in WEF’s survey expect artificial intelligence and automation to impact employment prospects negatively. However, they also believe the biggest drivers of employment creation are demographic and socio-economic in nature, in particular the opportunities offered by young demographics and the rising middle class in emerging markets (Chart 8).

### Table 1: Significance, timeframe and definition of drivers of change

<table>
<thead>
<tr>
<th>Drivers of change</th>
<th>Rated as top change</th>
<th>Expected timeframe</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changing work environments and flexible working arrangements</td>
<td>44%</td>
<td>Impact felt already</td>
<td>New technologies are enabling workplace innovations such as remote working, co-working spaces and teleconferencing. Organizations are likely to have an ever-smaller pool of core full-time employees for fixed functions, backed up by colleagues in other countries and external consultants and contractors for specific projects.</td>
</tr>
<tr>
<td>Mobile internet and cloud technology</td>
<td>34%</td>
<td>2015–2017</td>
<td>The mobile internet has applications across business and the public sector, enabling more efficient delivery of services and opportunities to increase workforce productivity. With cloud technology, applications can be delivered with minimal or no local software or processing power, enabling the rapid spread of internet-based service models.</td>
</tr>
<tr>
<td>Advances in computing power and Big Data</td>
<td>26%</td>
<td>2015–2017</td>
<td>Realizing the full potential of technological advances will require having in place the systems and capabilities to make sense of the unprecedented flood of data these innovations will generate.</td>
</tr>
<tr>
<td>Rise of the middle class in emerging markets</td>
<td>23%</td>
<td>Impact felt already</td>
<td>The world’s economic centre of gravity is shifting towards the emerging world. By 2030, Asia is projected to account for 66% of the global middle-class and for 59% of middle-class consumption.</td>
</tr>
</tbody>
</table>

Source: Future of Jobs Survey, World Economic Forum

### Chart 8: Employment effect of drivers of change (Compound growth rate, 2015-2020, %)

<table>
<thead>
<tr>
<th>Drivers of change</th>
<th>Compound growth rate, 2015-2020, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate change, natural resources</td>
<td>1.9%</td>
</tr>
<tr>
<td>Changing nature of work, flexible work</td>
<td>1.6%</td>
</tr>
<tr>
<td>Sharing economy, crowdsourcing</td>
<td>1.4%</td>
</tr>
<tr>
<td>Robotics, autonomous transport</td>
<td>1.4%</td>
</tr>
<tr>
<td>Consumer ethics, privacy issues</td>
<td>1.3%</td>
</tr>
<tr>
<td>Adv. manufacturing, 3D printing</td>
<td>-0.4%</td>
</tr>
<tr>
<td>Longevity, ageing societies</td>
<td>-0.7%</td>
</tr>
<tr>
<td>Artificial intelligence</td>
<td>-1.6%</td>
</tr>
<tr>
<td>Geopolitical volatility</td>
<td>-2.7%</td>
</tr>
</tbody>
</table>

Source: WEF Future of Jobs report
There is a modestly positive outlook for employment across most sectors for 2015-2020. However there is significant growth in some job families such as computing and financial and business management, largely due to the rapid urbanisation and rising middle class in emerging markets, and significant decline in office and administrative jobs in high income countries due to mobile internet and flexible work (Table 2).

Unlike the rest of the world, the WEF Jobs report expects SEA to experience a net increase in employment, due to the region’s young demographics, rapid urbanisation and rising middle class. The WEF Jobs report forecasts a small reduction in SEA manufacturing jobs but an increase in employment in the transportation, logistics, sales and management (Chart 9).

### Table 2: Top job families globally affected by the fourth industrial revolution

<table>
<thead>
<tr>
<th></th>
<th>Compound growth rate 2015-2020</th>
<th>Percentage of global workforce</th>
<th>Key drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Top 3 job families (negative impact)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office and Administration</td>
<td>-4.91%</td>
<td>9%</td>
<td>Flexible work, new energy, mobile internet</td>
</tr>
<tr>
<td>Manufacturing and Production</td>
<td>-1.63%</td>
<td>9%</td>
<td>Advanced materials, robotics, new energy</td>
</tr>
<tr>
<td>Arts, Design, Entertainment, Sports and Media</td>
<td>-1.03%</td>
<td>1%</td>
<td>Mobile internet, middle class in emerging markets</td>
</tr>
<tr>
<td><strong>Top 3 job families (positive impact)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer and Mathematical</td>
<td>+3.21%</td>
<td>1%</td>
<td>Rapid urbanisation, middle class in emerging markets, flexible work</td>
</tr>
<tr>
<td>Architecture and Engineering</td>
<td>+2.71%</td>
<td>1%</td>
<td>Middle class in emerging markets, robotics</td>
</tr>
<tr>
<td>Management</td>
<td>+0.97%</td>
<td>4%</td>
<td>Young demographics in emerging markets, geopolitical volatility</td>
</tr>
<tr>
<td><strong>Job families with little research</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farming, fishing and forestry</td>
<td>-</td>
<td>25%</td>
<td>A significant portion of global workforce remains employed in agriculture, food and personal care and service, for which demand is likely to grow due to demographic and social factors</td>
</tr>
<tr>
<td>Hospitality and Food Related</td>
<td>-</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>Personal Care and Service</td>
<td>-</td>
<td>5%</td>
<td></td>
</tr>
</tbody>
</table>

Source: WEF Future of Jobs report

### Chart 9: Employment outlook by main job family (current workforce in thousands) in SEA

- **Farming, fishing and forestry**: 12,525
- **Transportation and logistics**: 11,579
- **Sales and related**: 10,862
- **Personal care and service**: 10,317
- **Office and Administrative**: 9,342
- **Manufacturing and Production**: 9,113
- **Management**: 7,226
- **Social and Protective Services**: 7,046
- **Hospitality and Food Related**: 6,907
- **Construction and Extraction**: 5,372
- **Installation and Maintenance**: 4,945
- **Business, Legal and Financial**: 3,604
- **Computer, Mathematical and Science**: 2,712
- **Arts, Design, Entertainment, Sports and Media**: 2,700
- **Education and Training**: 2,419
- **Healthcare Practitioners**: 2,195

Source: WEF Future of Jobs report
Chapter Two

Play: How we will shop differently and the impact on retail space

• Globally, internet penetration and the use of smartphones have changed the way we shop.

• Consultants estimate that over 75% of our buying decisions are influenced by digital platforms and multi-channel retail modes such as Click-and-Collect and Research-Online-Purchase-Offline will make up over half of our in-store purchases.

• In developed markets, 65-75% of the population has bought something online and online sales make up 5-15% of total retail sales. Retail space per capita in the U.S. has peaked 5 years ago and started to decline. Out-of-town stores providing experiential trades seem to be more resilient.

• In SEA, the urban population is expected to grow by 2.2% per annum in 2015-2020, while the number of middle income households is expected to grow by 9% per annum in the period, boosting retail sales.

• Despite low urbanisation and low internet subscription rates in SEA, users are bypassing PCs to shop online using mobile phones. 30% of the population has bought something online, matching levels seen in developed countries. Outside tier-1 cities in Southeast Asia, 50-90% of consumers have bought something over their mobile phones.

• Retail space in tier-1 cities Singapore and Kuala Lumpur is high at 8-12 sq ft per capita and overall demand could fall short of current stock as supermarkets, department and electronic stores take less space. Growth could come from online retailers taking physical stores, pop-up stores and entertainment and education concepts.

• Outside of tier-1 cities, demand for regional malls should grow as incomes increase. Strong preference for cash payments and customer pick up instead of delivery of online purchases is supportive of more demand for physical stores by online retailers.
SEA consumption will grow as middle income population grows 9% p.a. in 2015-2020

SEA cities are growing faster than in many parts of the world. In 2015-2020, SEA urban population is expected to grow by 2.2% annually, similarly to China and India (both 2.3%). The fastest rates of urban population growth are expected in Vietnam and Indonesia. An additional eight million people per year will be making the rural to urban migration across SEA from 2015 to 2020 and this will help raise the urbanisation rate for the region as a whole to above 50%, from 47% today (Chart 10).

SEA’s middle class is expected to grow by 9% CAGR per capita until 2020

As the population moves to urban cities and transitions from an agrarian to an industrial economy, the per capita income should increase and support greater domestic consumption. The current middle income population in ASEAN is estimated to total 124 million, roughly equivalent to the population of Japan. SEA’s middle class is expected to grow by another 70 million or 9% CAGR by 2020. Indonesia is expected to account for about one-half of that increase (Chart 11).

Source: United Nations

Source: Brookings Institute
SEA consumers are bypassing PCs and using mobile phones to shop

In SEA, internet subscription is still low at 20-50% outside of urbanised countries Singapore and Malaysia. This is likely a function of low urbanisation rates currently. We expect internet penetration to grow in tandem with urbanisation, as seen in other countries (Chart 12).

One might expect online shopping penetration to be lower in Southeast Asia due to lower internet penetration. However, due to the high mobile penetration in Southeast Asia, growth in online shopping has outstripped internet penetration. A survey in 2015 by WeAreSocial.com estimated that 20-30% of the population in Southeast Asia bought something online using a phone in the past 30 days, no lower than UK and US where internet penetration is close to 90%. This is similar to the behaviour of consumers in China, where 34% of the population have bought something online (Chart 13).

Bain’s research also indicated that 50-90% of consumers outside tier-1 cities in Southeast Asia are bypassing PCs and directly accessing online retail using mobile phones (Chart 14).

In tier-1 cities, pro-actively managed malls may outperform

In SEA cities, aside from Singapore and Kuala Lumpur, retail space provision is still low at 4-5 sqft per capita. As the middle-income population grows in these cities, there is a need to increase the supply of retail spaces.

In Singapore and Kuala Lumpur, overall demand for retail space may fall short of current retail stock as more consumers shift more of their activities online. We expect landlords in these cities who pro-actively manage their malls to harness multi-channel retailing to outperform, and suburban malls to outperform in-town malls (Chart 15).

**Chart 12: Internet penetration and urbanisation rates are well correlated**

![Chart showing the correlation between internet penetration and urbanisation rates in various countries.](source: World Bank)

**Chart 13: Online shopping using mobile phones is higher in Southeast Asia**

![Chart showing the percentage of the population that bought something using a phone in the last month in various countries.](source: WeAreSocial.com)

**Chart 14: Devices used for online purchases and research, Nov 2015**

![Chart showing devices used for online purchases and research in various countries.](source: Bain and Co.)

**Chart 15: Retail space (sqft net lettable area) per capita**

![Chart showing retail space per capita in various cities.](source: Dept of statistics, JLL)
Pro-actively managed malls will gain market share by harnessing multi-channel retailing

According to Javelin Group, Click-and-collect and Research-Online-Purchase-Offline are the channels that are likely to grow the fastest over the next 5 to 10 years. These transactions could potentially make up over half of retail sales occurring in a store. Thus, pro-actively managed malls will gain market share by harnessing multi-channel approaches:

- **Incorporating lifestyle events and experiences**: Malls with a calendar of events providing consumers a reason to visit will evolve social gathering spots. Entertainment and education components in malls, including cinemas, LAN gaming centres, playgrounds, arts schools, restaurants and gourmet foodshops are likely to increasingly become essential components for regional malls.

- **Incorporate online savvy retailers**: Customers seem to enjoy an integrated shopping experience of using digital devices as part of their shopping trip and retailers that enable this process should succeed. For instance, Zalora have free WiFi in-store to allow shoppers to access the Internet seamlessly and check-out their purchases. Shoppers can also scan QR codes tagged to merchandise with their mobile devices, and add items into their virtual shopping bag.

- **Capture more online retailers**: Amazon has just opened its first physical store in Seattle, U.S. in late 2015, after the success of temporary pop-up stores. Alibaba also opened its first physical store in China to boost sales. We think these moves could be motivated by the desire to enhance branding, provide more customised services to consumers and reduce shipping and exchange costs. Customers seem to enjoy an integrated shopping experience of searching online for products and also having the social and human interaction in-store. The physical store also provides the immediacy of getting the product straight away. The physical store can also be used as a small warehouse for the company to stock popular items and ship them from the store for faster delivery as well as handle returns and exchanges.

Online retailers including Zalora and Reebonz have successfully set up ‘pop-up’ stores for a few months in malls in Singapore, Philippines, Hong Kong and Malaysia, to introduce their products and increase awareness.

- **Supermarkets and department stores will grow smaller**: These pro-active steps are important as a significant share of retail space (c.15-25%) in tier-1 cities is taken up by supermarkets, department stores and electronic equipment. We expect a 20-30% reduction in retail spaces by 2020 as more sales of these non-experiential goods go online. Asset owners will need to source for alternative tenants or uses for the space.

In Singapore, online shopers are increasingly buying clothing/shoes (63%), household or electronic goods (18%), groceries (15%), and books/magazines (8%). The sharpest increase in the last two years is in household or electronic goods, computer equipment (+75%) and groceries (+65%) (Chart 16).

71% of online purchases in Singapore are below S$500, up from 60% in 2012. We expect most shoppers to continue to visit shopping malls for purchases above S$500. Retail malls therefore should consider shifting their tenant mix to include more upmarket brands which are less likely to be bought online (Chart 17).
Well-managed regional malls close to communities in Singapore seem to be outperforming. In developed markets, out-of-town stores in experiential trades such as health-and-beauty, clothing and shoes and F&B seem to be outperforming as more shoppers browse online and complete their purchase in a store near to their homes. In Singapore, some retailers have cut back on the number of stores in the central shopping street Orchard Road. Well-managed suburban retail malls are outperforming with retail sales rising 2-5% p.a. in 2015 while overall retail sales fell 3% (Chart 18).

**Need for more suburban retail malls outside of tier-1 cities in Southeast Asia**

Outside of tier-1 cities in Southeast Asia, a significant proportion of the population is already using mobile phones to shop online. Further, unlike other markets, customers have a strong preference for cash on delivery over credit cards, and for customer pick up of purchases rather than home delivery. This could provide even more reason for online retailers to expand into physical stores in suburban areas.

**Indonesia**

Given the moratorium on stand-alone retail development in DKI Jakarta and the lack of pipeline supply in core areas, developers and retailers are already looking towards locations outside of DKI Jakarta including Greater Jakarta and second and third tier cities to decentralize and expand into. These areas have attractive demographic profiles with dense populations and strong spending capacities.

The west of the city is already relatively established in terms of retail supply with existing high-profile developments in the Tangerang and South Tangerang areas servicing large residential communities in BSD (AEON Mall), Serpong (Summarecon Mall) and Alam Sutera (Living World).

Fewer developments currently exist to the east of Jakarta, with the notable exception being Summarecon Mall Bekasi. The Bekasi and Cikarang areas are home to large industrial estate developments and supporting residential projects. Developers and retailers may seek further to tap into the potential that these areas offer, particularly given that growth in the logistics sector would be felt strongest to the east of Greater Jakarta.

There is also growing activity to the south of Jakarta around Sentul City and Bogor. The extension of toll roads has enhanced connectivity and developers have begun to develop mixed use projects in these areas.

The retail market is relatively underdeveloped in second and third tier cities in Indonesia. With the ongoing moratorium in Jakarta and the large, sometimes wealthy population bases further afield, cities such as Surabaya (East Java), Medan (Sumatra), Balikpapan (East Kalimantan) and Makassar (South Sulawesi) may increasingly become a focus for retailers and developers.

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**Chart 18: Capitaland Mall Trust mall traffic, sales and rental revenue**

![Chart 18: Capitaland Mall Trust mall traffic, sales and rental revenue](chart18)

Traffic, Tenant sales, Rent revenue and Singapore retail sales over the years 2011 to 2016. Source: Capitaland Mall Trust

**Vivocity traffic, tenant sales and rental revenue**

![Vivocity traffic, tenant sales and rental revenue](vivocity)

Rent revenue, Vivocity tenant sales (RHS) and Singapore retail sales from 3Q11 to 1Q16. Source: Mapletree Commercial Trust
Philippines

Around half of the total retail space in the Philippines is located in Metro Manila. However, there still is room for growth, especially in pockets of underserved areas in the capital region. The development of regional urban centres outside Metro Manila, such as the cities of Cebu, Davao, Iloilo and Cagayan de Oro, is also seen to spur growth of retail stock in these areas (Table 3).

Table 3: Retail space per capita in select urban centres in the Philippines, 2015

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Metro Manila</td>
<td>12,953,148</td>
<td>8,078,492</td>
<td>0.62</td>
</tr>
<tr>
<td>Metro Cebu</td>
<td>1,770,391</td>
<td>1,375,389</td>
<td>0.78</td>
</tr>
<tr>
<td>Davao City</td>
<td>1,629,041</td>
<td>774,548</td>
<td>0.48</td>
</tr>
<tr>
<td>Iloilo City</td>
<td>457,116</td>
<td>603,207</td>
<td>1.32</td>
</tr>
<tr>
<td>Cagayan de Oro City</td>
<td>687,427</td>
<td>311,697</td>
<td>0.45</td>
</tr>
</tbody>
</table>

Note: Population figures for 2015 were estimated using the compounded annual growth rate of population in 2000 and 2010.
Sources: Philippine Statistics Authority, JLL Research & Consulting

Social media drives buying behaviour, companies to raise their presence in SEA

Rising connectivity due to internet and mobile penetration will continue to raise awareness of the economic opportunities in cities and the shift from rural to urban will continue to accelerate. These emerging customers in SEA will be younger than those in the developed economies, and they will increasingly use mobile technologies and social media to find businesses. This creates a new dynamic where companies that used to ‘push’ products to customers will grow more dependent on customers who evaluate products by pulling information. As social networks and communities influence purchase decisions, businesses need to take a multi-channel approach to maintain their presence. This is likely to continue to drive businesses to increase their presence and job opportunities in Asia.
Drivers of change on the way we shop

From bricks and mortar to multi-channel

Globally, internet penetration and the use of smartphones have changed the way we shop. In the UK and US where internet penetration has reached 90% by 2014, 65-75% of the population has bought something online in 2015 and online retail sales now make up 10-15% of total sales. According to data compiled by Erik Brynjolfsson, professor at MIT Sloan School, e-commerce now accounts for about 30 percent of non-food, non-auto retailing in the US and continues to grow.

For SEA, internet subscription growth has been slower in the last ten years than expected in Indonesia and Thailand, but faster in Philippines and Vietnam (Chart 19).

<table>
<thead>
<tr>
<th>Country</th>
<th>Internet penetration</th>
<th>Bought something online in the past month</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>87%</td>
<td>66%</td>
</tr>
<tr>
<td>Europe</td>
<td>82%</td>
<td>57%</td>
</tr>
<tr>
<td>Japan</td>
<td>91%</td>
<td>55%</td>
</tr>
<tr>
<td>China</td>
<td>49%</td>
<td>44%</td>
</tr>
<tr>
<td>India</td>
<td>18%</td>
<td>23%</td>
</tr>
<tr>
<td>UK</td>
<td>88%</td>
<td>77%</td>
</tr>
<tr>
<td>World</td>
<td></td>
<td>18% 23%</td>
</tr>
</tbody>
</table>

Source: World Bank

Chart 19: Internet penetration and percentage of the population who shop online

Source: World Bank
Customers increasingly shop using multiple channels, including through bricks-and-mortar stores, through online stores and a combination of the two. According to studies by Accenture and Deloitte, digital devices influence 40 to 50% of in-store sales in the UK and US today, but this is expected to grow to 70-90% by 2020. Deloitte estimates that consumers who use digital devices during their shopping journey convert at a 40% higher rate and 22% of consumers spend more as a result of using digital.

Accenture’s retail strategy consulting group Javelin sets out five channels for retail. Most often, consumers use digital devices to research product specifications and reviews before buying them in physical stores (Research-Online-Purchase-Offline), and also for ordering online before collecting in-store (Click-&-Collect). Some purchases will be done purely online (Direct-only) and customers may also buy goods online after experiencing the products in store (Store-to-direct) (Chart 20).

Overall retail stores could fall by 20-30% but experiential stores in out of town locations could grow 20-40%

Javelin estimates that 65% of all non-supermarket transactions will occur in-store by 2020, compared to 87% in 2010. As more sales go online, they estimate that the number of chain stores in the UK could fall by 25%, with the number of stores in town falling by 31% while those out of town fall by 2%.

Javelin also estimates that store space used by experiential trades such as clothing and footwear and health and beauty chain stores could be more resilient that stores selling furniture/flooring and electrical goods. The out of town stores for experiential goods may actually increase by 20-40% as consumers prefer to browse online and go to a store close to their homes to try or buy the products.
Chapter Three

Live: Sharing our homes

- Home sharing platforms such as Airbnb and Homeaway now account for approximately 10% of occupied room nights global gateway cities. This could grow to 15% by 2020 in these mature markets with high international tourist arrivals. Impact on hotel room rates is started to be felt as hotels experience fewer compression nights.

- In Southeast Asia, the biggest international tourist cities, Singapore, Bangkok and Kuala Lumpur, receive 45 million international arrivals annually. Home sharing makes up about 2% of occupied room nights, but this could grow to 5% by 2020, in our view.

- Home sharing platforms are working with city planning authorities to regulate and contain social side effects. Hotel operators such as Accor are acquiring home sharing platforms, possibly to maintain market share.

- Residential rents and prices in central business districts are still lower than commercial and hotel prices. If planning laws allow short term stays in residential sites in central locations, residential prices could rise. As integration of use between retail, office, hotel and residential increases in city centres, values may depend more on location than allowable use in the next 5-10 years.
Home sharing platforms starting to impact hotel rates in some global gateway cities

Home sharing platforms such as Airbnb and HomeAway now account for around 25% of total available hotel room nights in global gateway cities in the US and Europe. However, in the top international tourist cities in Asia, adoption is still low, with listings making up 6% of total available room nights (Chart 21).

Some analysts have estimated Airbnb average occupancy rate in the top 4 markets at 25-30%, compared to the average hotel occupancy rate of 80%. This implies that home sharing accommodations may make up 9-11% of total occupied room nights in these cities. Impact on hotel room rates is started to be felt as hotels experience fewer compression nights.

Home sharing platforms are working with city planning authorities to regulate and contain social side effects. Depending on the city, restrictions and taxes are being put in place to minimize the impact of these short-term accommodations on availability of affordable housing and disamenities. Hotel operators such as Accor are acquiring home sharing platforms, possibly to maintain market share.

Chart 21: Hotel rooms and Airbnb listings available in the top 10 international tourist cities

Source: airdna, JLL
Nascent stage in SEA markets, impact on hotel room rates may be felt only after 2020

In Singapore, Bangkok and Kuala Lumpur, airbnb listings currently make up just 5% of total room inventory, and potentially just 2% of occupied room nights. The impact on hotel room rates is likely insignificant. However, we expect the number of listings to grow to 15% of total inventory and 5% of occupied room nights by 2020.

In Singapore and Kuala Lumpur, the gap between residential rents and hotel room rate is still significant. Average monthly revenue from Airbnb rentals is estimated to be lower than residential rents largely due to lower occupancy rates of around 20%, compared to residential occupancy rates of c.90% (Chart 22).

Residential rents and prices in central business districts are still lower than commercial and hotel prices. If planning laws allow short term stays in residential sites in central locations, residential prices could rise. As integration of use between retail, office, hotel, residential increases in city centres, values may depend more on location than allowable use in the next 5-10 years. In prime districts in Singapore where there is a sizeable stock of integrated buildings, estimated land prices implied by official development charges show that residential land prices are just 10-15% lower than commercial land prices (Charts 23 and 24).

Chart 22: Hotel rates compared to residential rents

Monthly revenue in USD (adjusted for occupancy)

<table>
<thead>
<tr>
<th></th>
<th>Top 15%</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hotel</td>
<td>$5,000</td>
<td>$3,000</td>
</tr>
<tr>
<td>Airbnb</td>
<td>$4,000</td>
<td>$2,000</td>
</tr>
<tr>
<td>Residential</td>
<td>$3,000</td>
<td>$1,000</td>
</tr>
</tbody>
</table>

Source: airdna.com, JLL

Chart 23: Estimated land price psf from development charges in Raffles Place, Singapore

Source: JLL, Urban Redevelopment Authority

Chart 24: Estimated land price psf from development charges in Orchard Road, Singapore

Source: JLL, Urban Redevelopment Authority
Chapter Four

Go: Autonomous driving, car sharing, mass transit and our cities

• New technology that enables intelligent traffic management, car sharing, autonomous driving and integrated multi-modal trips will enhance mobility and ease congestion. Adoption of these new technologies is expected to be higher in cities with high population densities and nascent infrastructure.

• Traffic congestion in Southeast Asia cities outside Singapore is high. The main reasons are the lack of limits on car ownership and low provision of mass rail transit. Fortunately, every city is investing in new rail transit lines completing over the next 5 to 10 years.

• Car sharing platforms such as Uber and Grab have increased their penetration significantly over the last five years, improving access, safety and mobility. More importantly, they can work with local city governments to use big data tools to leapfrog efforts to implement intelligent traffic management systems to reduce congestion and improve safety. The pilot between Grab, the World Bank and the Philippines government started in April 2016.

• Community-based traffic and navigation apps, such as Waze, has also contributed to changes in traffic in Manila by providing users with information on traffic conditions. Effectiveness will grow as more users join the platform.

• In Singapore, the government is testing the use of autonomous vehicles in parks, the port and to shuttle commuters from MRT stations to homes, closing the last 500m gap. Car ownership growth is capped so road growth is expected to grow 10% slower than the urbanisation rate in 2011-2030.
Intelligent traffic management, car sharing and autonomous driving to cut congestion

As more of the world’s population live in cities, new technologies and platforms have emerged to enhance urban mobility:

1. Intelligent traffic management: Widespread adoption of mobile phones and new software allows traffic control to get detailed information from cars to moderate speed limits in real time and reroute traffic to clear bottlenecks.

2. Car sharing: Most cars are stationary 90 percent of the time. The availability of car sharing technology should allow each vehicle to be used more intensively, lower the cost of personal car ownership and perhaps reduce the number of cars on the roads. Car sharing platforms are already prevalent in advanced cities such as San Francisco and New York City and can be incorporated into e-hailing schemes such as Uber and Grab.

3. Autonomous driving: As more luxury car models include sophisticated systems offering partial autonomy, the public is increasingly more receptive to autonomous cars. Google plans to launch a pilot of autonomous cars by 2020. Autonomous vehicles could cut accidents by up to 90 percent, and also reduce the need for car parks and roads as these vehicles would be able to travel closer together and at higher speeds.

4. Integrated multi-modal trips: With the technologies above and expansion of public transit systems including rail and buses, commuters can use digital platforms to plan, book and pay for multi-modal trips including train, taxi and/or car-sharing.

Adoption rates likely higher for developing cities such as those in Asia

We believe that adoption of new mobility platforms such as car-sharing, ride hailing and navigation crowdsourcing can be higher in developing cities where population densities are high and infrastructure is still in nascent stages. Consumers and city authorities can leapfrog traditional mobility paradigms and adopt new technology to solve some of the traffic issues. According to McKinsey, the adoption of digital mobility services is most possible in mature cities. Even for rising megacities like Shanghai, Mexico City and Sao Paolo, McKinsey thinks there would be gradual adoption of digital mobility services in tandem with the improvement of public transport and regulations to curb vehicle ownership and usage (Chart 25).

Chart 25: Adoption of digital mobility services and public transit based on city density and development

Source: McKinsey
**Mass rail transit and curbs on car ownership are crucial to smooth traffic in SEA**

In most Southeast Asia cities other than Singapore, traffic congestion is severe. Travel time is the highest in Manila, Jakarta and Bangkok. Road traffic deaths in Thailand and Malaysia are high at 25-40 per 100,000 population (Chart 26).

The main reasons for traffic congestion in the region come largely down to (1) uncontrolled car ownership and (2) a lack of mass rail transit within the city. Use of public transport is still low in cities outside Singapore, taking up 5-20% of total trips. For Singapore, about 66% of peak hour trips are taken via public transport.

**Rapid expansion of mass rail transit in the next five years to significantly improve congestion**

Mass rapid transit projects under construction in Singapore, Kuala Lumpur, Bangkok, Manila and Jakarta will increase rail length by 50% by 2020, increasing use of public transport (Charts 27).

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**Chart 26: Estimated commute time and road traffic deaths**

<table>
<thead>
<tr>
<th>City</th>
<th>Commute Time (mins)</th>
<th>Road Traffic Deaths (per 100,000 population)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANILA</td>
<td>56</td>
<td>9</td>
</tr>
<tr>
<td>JAKARTA</td>
<td>53</td>
<td>18</td>
</tr>
<tr>
<td>BANGKOK</td>
<td>50</td>
<td>38</td>
</tr>
<tr>
<td>KUALA LUMPUR</td>
<td>46</td>
<td>25</td>
</tr>
<tr>
<td>SINGAPORE</td>
<td>42</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Source: numbeo, World Health Organisation

**Chart 27: Metro rail network km per million population**

- **Singapore**: 30.9 km, 2015
  - Planned: 58.0 km
- **Kuala Lumpur**: 10.0 km, 2015
  - Planned: 15.7 km
- **Bangkok**: 6.9 km, 2015
  - Planned: 19.1 km
- **Manila**: 3.9 km, 2015
  - Planned: 6.3 km
- **Jakarta**: 9.8 km, 2015

Source: JLL

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**New technology leapfrogging bureaucracy to ease congestion in SEA**

**Ride hailing and car sharing improving mobility**

Ride hailing and car sharing platforms Uber and Grab have exhibited remarkable growth in Southeast Asia. Generally, commuters have found these platforms improve their ability to get taxis during peak hours and pay less for rides during low-peak periods. Unique to Southeast Asia, Grab has also launched a Grab Bike service in Thailand, Philippines and Indonesia for motorcycle rides. Uber has launched UberMoto, a similar service, in both Bangkok and Jakarta.
Data from ride hailing platforms are being used for intelligent traffic management

We believe the high mobile penetration and utilisation of ride sharing platforms will allow SEA cities to use big data tools to leapfrog efforts to implement intelligent traffic management systems. In April 2016, Grab announced that it is working with the World Bank and the Philippines Department of Transportation and Communications (DOTC) on rolling out an Open Traffic Initiative. OpenTraffic uses real-time data collected by Grab, including speeds, flows and intersection delays, which are then analysed by the tools, for example to identify road incident black spots, alleviate traffic congestion and improve road safety. Analysis of flows during peak hours and travel time reliability data can also be used to design travel demand and management policies and flexible re-routing schemes to help divert traffic in the event of an accident. World Bank and Grab said they plan to make OpenTraffic available to other Southeast Asian governments in the near future.

Community-based navigation apps are changing traffic conditions

Waze, a community-based traffic and navigation app named Jakarta as one of its top ten markets. Waze crowdsources and provides information on traffic conditions to allow commuters to use the best route and ease congestion. The company said in Nov 2013 that there were already 750,000 active Waze users in Indonesia, which is available in the Indonesian language. In September 2014, the Jakarta government signed up with Waze with the former agreeing to provide updates about traffic jams and accidents, which would then be visible to people using the app. City authorities can also use the app to respond to user-uploaded reports of traffic conditions and incidents. The Jakarta government is also working with Express Taxis to use their taxi speeds to infer traffic conditions. In the Philippines, Waze has already contributed to the change in traffic. Effectiveness will grow as more users join the platform.

New infrastructure to spur development at new commercial nodes

High-speed rail to Malaysia could catalyse development of the Jurong Lake District in Singapore and Bandar Malaysia in Kuala Lumpur

We expect commercial properties at the interchanges of the new rail lines in developing cities to outperform. Singapore and Malaysia have planned to build a high speed rail link between Kuala Lumpur and Singapore to allow commuters to complete the journey between the two cities in 90 minutes. Currently, it takes up to eight hours by train and about five hours by express bus. Construction is expected to start in 2017 and be completed by 2022.

In Singapore, the terminal will be sited in the heart of Jurong Lake District and will be connected to the Jurong East MRT station. Two upcoming MRT lines, the Jurong Region Line and the Cross Island Line, which will be completed in 2025 and 2030 respectively, will also be within accessible to the terminal. The master plan for the district provides for more sale sites for offices, retail, residential and hotels around the high-speed rail and MRT interchange. Development intensified in 2010 with the sale of several commercial sites at Jurong East MRT station, including three malls offering a total of c.1.24 million sq ft of shopping, entertainment and dining space, two new office developments with some 620,000 sq ft of space, a 557-room hotel, two hospitals offering a total of 1,100 beds and numerous new homes.

In Kuala Lumpur, the high-speed rail terminal will be located in Bandar Malaysia regional centre planned at the site of the old Sungai Besi
airport, 3km South-West of the city's golden triangle. The plan for the 194ha district includes regional headquarters of multi-national corporations and government-linked companies, retail malls and residential apartments. The China Railway Group Limited, one of China’s largest state-owned firms, just took over the project in March 2016 and said it would invest US$2 billion to develop the regional centre.

**Initiatives in developed Singapore used to enhance traffic management**

- **Intelligent traffic management using global navigation systems:** The Singapore government has been proactive in adopting intelligent traffic management with adjustments to electronic road pricing to moderate bottlenecks and congestions. By 2020, this will be replaced by a global navigation satellite system where cars can be tracked for traffic management and toll collection. Sensors have already been placed in each taxi and public buses in 2015.

- **Using autonomous cars to augment public transport:** The Ministry of Transport are testing the use of autonomous vehicles in public parks and the port. In 2016, autonomous mini buses will be used to...
shuttle commuters for the last 500m, from selected MRT stations to homes.

• **Reduce car ownership and land set aside for roads**: Car ownership has been capped to grow at 0.25% p.a., compared to population growth of 1.2%. By 2030, the government expects to put 30% more land aside for residential, commercial, industrial and recreation uses, but only 17% more for land transport infrastructure. Potentially the savings in land use could come from more intelligent traffic management and higher share of trips via public transport.

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