Infrastructure development in Asia Pacific (APEC)
The next 10 years
The changing landscape of the Asia Pacific infrastructure market

Walk down the streets of Shanghai, Seoul or Singapore and you will see an increasingly familiar landscape of cappuccino bars and upscale stores, alongside a surge of car owners and smartphone users in Asia Pacific. Each is a sign of the opportunities stemming from the run of infrastructure development over the past decade, giving rise to the question—What is needed for the next 10 years?

As Asia Pacific changes and becomes the global economic powerhouse of the next decade, the infrastructure needs across the region will change too. Robust and savvy deployment of resources will play a pivotal role in how the 21 member economies in the Asia-Pacific Economic Cooperation (APEC) forum not only survive but thrive.

Key trends that will influence priorities and investments in regional infrastructure development

• Demand for new transport and utilities infrastructure
  The substantial infrastructure gap across the region is well recognised—as economies grow, so does the need for new transport infrastructure to mobilise workforces, transport products and connect the economic centres of the region. Further, improved capacity in the provision of power, gas, water and other utility-related infrastructure becomes more critical as economies demand more.

• Schools, healthcare facilities and aged care
  Rising wealth and demographic trends will fuel demand for more spending on social infrastructure. Capital will need to be allocated to education and healthcare to ensure populations are able to contribute to their growing economies on a sustainable basis.
• **Wired Asia Pacific**  
The e-commerce boom is driving expectations for faster and cheaper access to broadband networks for shoppers and businesses. At the same time, it is putting pressure on policy makers to agree to share data across borders as well as safeguard transactions, privacy and intellectual property. These are the types of ‘soft’ infrastructure that help expand business and trade and that are becoming more prominent as connectivity evolves in this region and around the globe.

• **Bright lights, big cities**  
More and more people are moving to cities. High urbanisation rates place increased pressure on weak, underinvested city infrastructure. It is, therefore, critical to find ways to better manage infrastructure, such as housing, transport networks, water supply and waste management, in order to sustain growing cities. And as cities become more sophisticated, infrastructure development will trend towards achieving a higher quality of life.

• **Private sector platforms for growth**  
According to the PwC 2014 APEC CEO Survey, capital spending plans by businesses over the next three to five years include expanding distribution capabilities in the region, bolstering digital participation and widening the geographic spread of manufacturing facilities. These private sector commitments underpin the need for integrated infrastructure development planning in the region.

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This outlook on infrastructure needs for APEC economies draws on two recent reports: an analysis of global capital projects and infrastructure spending trends by PwC and Oxford Economics and the PwC 2014 APEC CEO Survey. You can access the full reports and customise the supporting data here:

[Capital project and infrastructure spending: Outlook to 2025](#)  
PwC 2014 APEC CEO Survey
A wave of opportunity is expected to rise again over the next decade for APEC’s 21 member economies. And the drivers are changing on the back of rising wealth, urbanisation, digital commerce and, finally, the continued economic integration of the region.

This has important implications for how infrastructure is planned and financed. It’s not that the need for build-outs and upgrades of core infrastructures is subsiding. It’s that new needs are rising concurrently as economies grow.

The wealth of opportunity also points to the magnitude of investment needed. To help overcome the current barriers that inhibit funds from flowing into the area’s critical infrastructure, a regional approach to creating mutually beneficial partnerships between the public and private sectors will be needed to accelerate the pace of infrastructure improvement.

Substantial infrastructure development in the region over the past decade is bearing fruit and this is important. More business leaders are now seeing incremental improvements in technology and trade infrastructures since 2012, according to the PwC 2014 APEC CEO Survey.

Nonetheless, these improvements are not seen as coming fast enough. Executives who are either based in APEC economies within ASEAN or have oversight there are more likely to experience a ‘significant impact’ on their operations and growth prospects as a result of infrastructure bottlenecks compared with two years ago (see Figure 1).

Figure 1: Infrastructure bottlenecks subsiding in Asia Pacific, but not fast enough for businesses in ASEAN economies

% respondents who say bottlenecks impact significantly

- 70%
- 60%
- 50%
- 40%
- 30%
- 20%
- 10%
- 0%

Water Social Trade Power

Regulatory and legal

Transport Information and communications networks

Q: To what degree are bottlenecks in the following infrastructure categories directly impacting the operation and growth of your organisation in APEC economies?

Base: 607 (APEC 2014); 166 (ASEAN 2014); 333–361 (APEC 2012). ASEAN economies represented: Brunei Darussalam, Indonesia, Malaysia, The Philippines, Singapore, Thailand, Viet Nam.


Time to adopt a regional perspective with infrastructure development
These findings underpin the importance of planning for infrastructure with regional economic connectivity in mind.

As the PwC 2014 APEC CEO Survey shows, some businesses are expanding distribution and service centres to reach new geographies in APEC. Others are stepping up investments in IT infrastructure and data centres to expand their digital reach. Each of these examples is reliant on continued gains in APEC connectivity.

Weak points in hard infrastructure—for example with rail networks, ports or power generation—hamper business efforts to expand in APEC. A very significant level of investment in roads, light and heavy rails, metro, port and airport infrastructure is required across the region in order to sustain current levels of growth. Governments across the region remain a key driver to facilitating this necessary infrastructure planning and investment.

Barriers in ‘soft’ infrastructures, such as rules around customs or sharing data across borders, create additional complexities and costs that make Asia’s economies less competitive. The ASEAN bloc hopes to address some of these barriers by making trade easier, thereby reducing costs and expanding the available workforce in the region.

Integrated infrastructure—and the services that follow—has the potential to create new opportunities for small and medium-sized enterprises beyond domestic markets. We agree with Doris Ho, president and CEO of A. Magsaysay, Inc., a shipping company in The Philippines, who told PwC in an interview that once integration is understood “as an opportunity to create a continuous pipeline with continuous services all the way through, regardless of borders or the ocean between us, then it’s a different business growth model and it’s very exciting.”
**Five trends you should know about Asia-Pacific infrastructure development**

*Demand for new transport and utilities infrastructure*

Much of future spending in infrastructure will be driven by the faster-growing economies in Asia, where the share of global infrastructure spending is set to grow from 30% in 2012 to 40% in 2018 and 48% by 2025, largely driven by the People’s Republic of China (China). Asia’s infrastructure market is forecast to grow by 7% to 8% annually over the next decade, nearing US$5.3 trillion by 2025 or 60% of the world total.1

“*In Asia, we see enormous requirements for infrastructure.* Without appropriate and adequate transport, countless millions of people lack access to jobs, markets, hospitals, and schools.”

Haruhiko Kuroda, former president of the Asian Development Bank

Road spending is expected to continue to see an uptick, particularly in emerging Asian economies. Increased prosperity leads to a demand in car ownership. It is estimated that each US$1,000 increase in GDP per capita results in 15 more cars per 1,000 residents (see Figure 2).2

*Figure 2: Road investment spend, 2025 vs. 2010*

Percentage growth in annual $ road investment, 2025 versus 2010

Source: PwC and Oxford Economics. PwC’s Capital project and infrastructure spending: Outlook to 2025, research findings, PwC, 2014
Coupled with increased spend on road infrastructure, economies need to invest heavily in other forms of transport infrastructure. Heavy rail, high speed rail and urban rail are necessary to allow for the effective movement of goods and raw materials, as well as the effective movement of people around urban centres. Ports and airports remain a key part of transport networks in a geographically fractured region.

In mature Asia Pacific economies—with the exception of Australia—social and transportation spending tend to account for over half of infrastructure investment. In emerging Asia, social and transportation investment today contributes a much lower share of total infrastructure spending, around 30–40% on average (see Figure 3).

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**Schools, healthcare facilities and aged care**

The region’s growing prosperity is also igniting social infrastructure development. The need for hospitals and senior centres will be fueled by an increasingly aging population. This is particularly true of economies like Japan and the Republic of Korea, (Korea) which are greying faster than the rest of the world.

In contrast, the need for schools and education centres is expected to rise in less developed economies, which currently have some of the youngest populations. Increasingly wealthy and more mobile societies will demand better education as the younger generation become the economic leaders of tomorrow. Nonetheless, demographic trends are likely to push government resources towards health investment even in the younger economies. As a result, the proportion of social investment into healthcare facilities is likely to increase over the coming decade across the region (see Figure 4).

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**Figure 4: Sectoral composition of Asia-Pacific infrastructure 2013–2025**

Source: PwC and Oxford Economics. *PwC’s Capital project and infrastructure spending: Outlook to 2025, research findings, PwC, 2014*
**Wired Asia Pacific**

As mobile usage spreads, the world’s biggest e-commerce market is shifting to Asia and to China in particular. This will drive demand for faster and cheaper broadband access. These economies are already some of the most wired in the world, but there remains much more room to grow the reach of mobile and broadband connectivity.

In China, for example, the e-commerce industry today is still in the early stages. Only 20-25% of small businesses in China have internet connections, compared to 75% in the US, according to research from Oxford Analytica. This is likely to change quickly. China is upgrading its telecoms networks faster than anywhere else in the world, the research group notes.

However, it would be incorrect to ignore other infrastructure needs by placing too much emphasis on telecommunications infrastructure. There is a significant infrastructure deficit across APEC economies, especially in telecommunication, but the gap is substantial across all infrastructure segments. To sustain current economic growth levels, it will be necessary to inject between US$800 billion and US$1.3 trillion annually into infrastructure projects between now and 2020, according to *Foundations of the future*, a report prepared for the APEC Business Advisory Council (ABAC) by PwC in 2013.
“In the next 20 to 30 years, we are going to spend more money on urbanisation worldwide than we have spent in our entire history.”

Aris Papadopoulos, CEO of Titan America

**Bright lights, big cities**

The shift to city life has transformed capitals in emerging Asia Pacific. In fact, Asia is home to the world’s seven largest megacities. A rising number of rural residents look hopefully towards big city life and are attracted by the promise of improved economic prospects and quality of life, including more culture, better healthcare and education.

By 2030 it is estimated that 60% of the world’s population will live in cities. This will necessarily redirect infrastructure planning and spending. Growing wealth triggers the need for smarter and more attractive centres for living and commerce. These large populations and city governments require improved transport networks to get people to and from work; better waste management capacity and substantially more capacity in the provision of clean water, and power. Furthermore, logistics networks require improvements to ensure the safe provision of food in developing economies that have relied on informal, less advanced networks.

Larger cities will bring resilience planning to the fore. “In the next 20 to 30 years, we are going to spend more money on urbanisation worldwide than we have spent in our entire history,” says Aris Papadopoulos, CEO of Titan America, who heads the UNISDR’s Private Sector Advisory Group (United Nations Office for Disaster Reduction). “If our investment isn’t resilient the first time around, we’re going to have to do it over.”

Demand for more sophisticated infrastructure will also increase. Cities will aim to be more attractive places for people to live and work in. There will be a need for smarter, more innovative and technologically savvy building.

Emerging economies that are building their cities and industrial base for the first time need to have higher investment ratios than developed economies. In Indonesia, headline capital asset investment ratio is 34% of GDP, with much of it going into high-end apartments and real estate compared with the infrastructure needed for continued and sustainable economic growth, such as transport networks, power, water, and waste.
Where are the Cities of Opportunity positioned today in the evolution of urban infrastructure and what will future infrastructure demands be?

![Figure 5: Infrastructure spending evolves with a region’s economic growth](image)

**Reactive:** Struggling to keep pace with demand, and less attractive city in which to live, work, and do business.

**Basic**
Minimal urban infrastructure to meet basic human survival needs such as running water and shelter.

- Hospitals
- Power
- Roads, buses, and taxis
- Schools
- Waste and sewage

**Advanced**
Infrastructure geared more toward improving economic growth and productivity, competitiveness, and economic efficiency, including mass transit, commercial property, technology, global connectivity, advanced university education and research, and enhanced natural disaster risk management, such as flood defenses, to prevent human suffering.

- Mass transit
- Commercial property
- Technology
- Air, rail and sea connectivity
- Education and research
- Natural disaster risk management

**Quality of life**
Infrastructure targeting more advanced human needs to improve all aspects of quality of life and sustainability, including elderly care, green space, leisure and cultural assets, and environmental infrastructure.

- Elderly care
- Leisure
- Culture
- Environment
- Green space
- Eco living

Private sector platforms for growth

Private sector plans to invest in new and significant long-term facilities provide a window into where businesses see their futures in Asia Pacific. Thus they help show where the business needs for infrastructure development are concentrating.

In its annual survey of business leaders in the region, PwC asked executives to detail their planned investments in facilities related to their businesses (see Figure 6). The survey responses indicate around US$56 billion will likely be spent on capital projects over the next three to five years. This excludes much larger infrastructure spending that is inherently governmental—road and rail networks, power generation and transmission and, of course, water and waste management.

Businesses are investing to expand in consumer markets, spread their distribution reach and increase their presence in the digital economy. Combined, capital spending plans in these areas outnumber the plans to build or expand manufacturing facilities.

Their plans also underscore a more prominent specialisation pattern in the region. For example, one company detailed plans to build a new production plant in Malaysia, a distribution centre in Korea and, finally, an office expansion in Singapore to accommodate new headcount.
Figure 6: Where private sector capital spending is going in Asia Pacific in the next 3–5 years

Business plans reveal a changing Asia Pacific and the need for connected infrastructure development

What are they building? In their own words...

<table>
<thead>
<tr>
<th>Sector</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial</td>
<td>Assembly, manufacturing, chemical and paper plants</td>
</tr>
<tr>
<td>Operations/capacity</td>
<td>Air cargo, ports capacity, distribution centres, warehouses, office space, service centres</td>
</tr>
<tr>
<td>Consumer</td>
<td>Bank network, retail outlets, movie production, hotels, outpatient clinics, casinos, retirement village</td>
</tr>
<tr>
<td>Digital economy</td>
<td>Data centres, communications infrastructure, automation and efficiency technologies</td>
</tr>
<tr>
<td>Basic material/power</td>
<td>Bauxite mine, coal processing plant, gas production and flowlines, wind farms</td>
</tr>
</tbody>
</table>

Where are they building?

<table>
<thead>
<tr>
<th>Country</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>19</td>
</tr>
<tr>
<td>People's Republic of China</td>
<td>17</td>
</tr>
<tr>
<td>Hong Kong, China</td>
<td>18</td>
</tr>
<tr>
<td>Indonesia</td>
<td>13</td>
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<tr>
<td>New Zealand</td>
<td>13</td>
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<tr>
<td>The Philippines</td>
<td>14</td>
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<tr>
<td>Singapore</td>
<td>12</td>
</tr>
<tr>
<td>Chinese Taipei</td>
<td>19</td>
</tr>
<tr>
<td>The United States</td>
<td>15</td>
</tr>
</tbody>
</table>

How much are they spending?

- 50% Less than US$100 million
- 28% US$100–500 million
- 15% Over US$500 million

Q: Is your organisation intending to invest in new facilities or capital projects in an APEC economy over the next 3–5 years?
Base: 610

Q: What is the size of the total investment(s)? In which APEC economy(ies) do you intend to invest in those new facilities? Describe the type of new facilities.
Base: 345, respondents who selected ‘Yes’, ‘Don’t know’ responses not displayed, and bar chart shows the top ten economies for investment only.

Source: PwC 2014 APEC CEO Survey. www.pwc.com/apec
The road ahead: the potential for public–private partnerships to spur infrastructure growth

Infrastructure development is clearly a fundamental ingredient in order to allow Asia to achieve its growth promise. Private and public sector cooperation is key.

Practical solutions need to be developed across the region to allow for more effective infrastructure investment. Beyond coordinated planning, regional governments need to address basic requirements of the investment community. This is critical to attracting investment into much needed infrastructure—better project preparation, improved regulatory frameworks, better appreciation of the risk/reward tradeoff and robust procurement process, to name a few.

Mutually beneficial partnerships between the public and private sectors can overcome the barriers that inhibit funds from flowing into critical infrastructure. For example, private firms can better overcome the difficulties in building and delivering public infrastructure if they have the support of a local government that is committed to making policies that create conducive conditions for private sector participation in infrastructure projects.

Likewise, for governments that face challenges getting well-structured infrastructure projects to market, the introduction of private sector technology and best practices can help realize those projects and enhance project quality, enabling the local economy to enjoy reliable power, transport, and digital infrastructure. Involving the private sector also boosts skilled staffing, which accelerates project timelines. Moreover, the knowledge transfer to the region’s infrastructure sector is often permanent, resulting in an economic uplift for decades to come.

We believe that public and private sector cooperation is key to boosting future infrastructure development and spurring faster growth in the wider economy. And this economic growth, together with trade connectivity to APEC, is fundamental to Asia Pacific’s ability to achieve its growth promise in the coming decade.

Endnotes

3. Ibid. 1.
4. Ibid. 1.
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