Vertical World

How urbanization will transform Asia within the next decades
The Asian Development Bank estimates that Asia is currently adding a staggering 44 million urban dwellers every year. The sheer scale and pace of urbanization in this part of the world pose unique challenges, which can be delineated in terms of providing sufficient economic opportunities, building adequate infrastructure and maintaining a healthy and livable environment.

Needless to say, the region’s urbanization is an ongoing phenomenon that is far from reaching its conclusion. This issue of Vertical World gives a glimpse of the urbanization trends impacting Asian cities as well as our take on which of these trends we believe are likely to persist over the next decades.

While urbanization has presented the industry with solid growth prospects, we need to keep an eye at all times, and act, on equally important considerations about sustainability, both at the micro or macro levels.

This is an attitude to which Jardine Schindler has remained true over the years, as evidenced by the successful deployment of numerous award-winning innovations on revolutionary projects that have achieved record levels of performance and efficiency.

The Schindler Group remains resolutely forward-looking by developing proprietary technologies that are not only of immediate practical application, but go as far as offering new tangible possibilities to the architects and designers of our future cities. myPORT, launched in December, is one such technology.

This purpose has helped the company remain at the forefront and I am pleased to confirm that 2014 was no exception with many landmark contracts awarded, of which this issue lists a few examples.

I hope you will find this reading of interest and wish you an excellent year 2015.

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About Jardine Schindler Group (JSG)

Jardine Schindler Group (JSG) is a Joint Venture between Jardine Matheson in Hong Kong and Schindler Group of Switzerland, who between them bring over 300 years of experience in business management, regional specialization and engineering excellence.

JSG is headquartered in Hong Kong and designs, engineers, installs, maintains and modernizes elevators, escalators and moving walkways in Brunei, Cambodia, Hong Kong, Macau, Malaysia, Myanmar, Indonesia, the Philippines, Singapore, Thailand, Taiwan and Vietnam.
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The year 2007 marked the first time in human history when more than half of the world’s population lived in cities. In the early 1900s, the figure was a mere 15%.

While urbanization, driven by a shift towards industry and services from a largely agrarian society, first transformed developed countries, the phenomenon started to shape the future of the developing world in the 1950s.

Asia’s Urbanization Trends

In Asia, the urbanization rate was indeed still modest fifty years ago, standing at 17%. According to the Asian Development Bank, by 2030 urbanites will account for about 55% of the Asian population, corresponding to an astonishing increase in the number of city dwellers in Asia from 230 million to 2.7 billion within less than a century.

As in most of the developing world, the growth in Asia’s urban population has been concurrent with economic development, greater access to education and essential public utilities, a significant increase in life expectancy and a timely reduction in poverty levels. As of 2012, Asia’s urban areas accounted for 80% of the region’s GDP and 42% of its population.

While Asia’s urbanization rate still lies below 50%, over the last two decades the region’s cities have added more residents than the combined population of the United States and the European Union. Asia is already home to 50% of the global urban population.

This astounding growth has presented governments and city planners with a set of unique challenges. By dramatically transforming the region over just a few decades, the rapid urbanization of Asia has led to the emergence of new defining trends.

Did you know?

- The world’s urban population has grown rapidly since 1950, from 750 million to 3.9 billion in 2014.
- Continuing population growth and urbanization are projected to add 2.5 billion people to the world’s urban population by 2050, with nearly 90% of the increase concentrated in Asia and Africa.
- 58 of the world’s 100 largest cities are in Asia; 26 are in China alone (the Economist).
- China’s largest cities are Chongqing (29 million), Shanghai (23 million) and Beijing (19 million).
**Trend 1: Mega Cities and Mega Urban Regions**

As a result of such an exceptional increase in the number of urban residents, the scale of individual cities has grown tremendously. As of 2014, the number of megacities (counting more than 10 million inhabitants) has swelled to 30 worldwide, including 17 in Asia alone. In 1975, Tokyo was the only megacity in Asia (it is still projected to remain the largest city in the world for the next thirty years).

Further, many cities or urban areas have come to merge with one another to form continuously built up land masses of urban development, or so-called Mega Urban Regions (MURs) and create natural economic units and growth engines.

They are usually organized around several centers and their population tends to grow much faster than the national average.

As of today, there are 21 MURs around the world including 12 in Asia. Some of these agglomerations already have populations reaching dozens of millions of inhabitants, as can be observed in China’s Pearl River Delta (150 million) or Japan’s Greater Tokyo area (60 million).

Not only applicable to Asia’s largest economies, this phenomenon is also particularly pronounced in Southeast Asia. According to UN-Habitat, it is expected that by 2020, two thirds of ASEAN’s urban population will live in only five MURs: the Bangkok Metropolitan Region, the Kuala Lumpur-Klang Valley, the Johor-Singapore-Riau Triangle, Indonesia’s Jabotabek Metropolitan Area and the Metro Manila Mega Region.

While MURs and megacities often play a substantial part in a country’s economic development, they may be affected by continuous challenges such as high property prices near city centers, traffic congestion and environmental issues. Even highly sophisticated metropolises with mature infrastructure such as Tokyo or Seoul still need to tackle such issues.
Trend 2: The demand on infrastructure has grown at an unprecedented rate

The remarkable growth of such massive conurbations is exerting a huge, unremitting pressure on local infrastructure. According to the Asian Development Bank, a staggering 60% of the projected 2030 urban landmass remains to be built. HSBC estimates this translates into planned capital expenditures of around USD11.5 trillion for the region over that period.

In particular, the ADB projects that ASEAN countries will require investment in their infrastructure in the range of USD60 billion per annum, excluding other national or cross-border projects.

Indeed, the fast pace of Southeast Asia’s economic development in recent years means that the build-up of various transportation networks, key utilities, healthcare or education facilities may occasionally lag behind.

This challenge is inconveniently worsened by the fragmentation of the various government bodies and utilities overseeing the vast urban areas. To this end, central and municipal governments have come to jointly promote so-called satellite city center projects to service urban clusters more effectively and alleviate pressure on older, downtown facilities.

Examples of other decisive initiatives taken by governments in the region include Jakarta’s first subway line, Thailand’s Future 2020 plan and Malaysia’s Economic Transformation Program.

Trend 3: Cities are growing taller

As cities can only grow so much horizontally and high land valuations amidst scarce supply within city centers drive the need for towering skyscrapers, both residential and office buildings are built increasingly taller.

This trend not only allows for a more efficient use of valuable space, but also brings together working communities around...
It is expected that by 2020, two thirds of ASEAN’s urban population will live in only five MURs: the Bangkok Metropolitan Region, the Kuala Lumpur-Klang Valley, the Johor-Singapore-Riau Triangle, Indonesia’s Jabotabek Metropolitan Area and the Metro Manila Mega Region.

...
Trend 4: The advent of mixed-use developments or “a city within a city”

Asia’s rapid urbanization has also given rise to innovative solutions, such as the concept of superblock or mixed-use development. A city within the city, a mixed-use development is a microcosm comprising all elements of modern urban life, including residential buildings, office towers, retail areas, restaurants as well as all essential services.

The premise of these developments, often targeted at the upper classes of society, is to offer both convenience, better livability and synergies between residents, office tenants and retailers.

In Indonesia in particular, such mixed-use developments have been dubbed “superblocks”, as their footprint is considerably larger than a regular city block. Highly popular in the Greater Jakarta area, superblocks are seen as a viable response to traffic congestion issues.

Grand Indonesia and Senayan City are two examples of the many superblocks dotting the city. Both are structured around a premium shopping mall. While Grand Indonesia comprises a 56-story office tower, a 5-star hotel and a high-end service apartment complex, Senayan City includes two office towers and a luxurious apartment building.

Sarvesh Malhotra, Regional Director of Jardine Schindler Group (JSG) with vast experience in the South East Asia region over the past 25 years describes Asia’s urbanization as spectacular and an ongoing phenomenon.

“While urbanization rates in the so-called Tiger economies are already far above the global average, those of China, India or Southeast Asia are still on an upward trend. This expectation translates into an influx of several hundred millions migrants to Asian cities over the next 10 years. The investment required to accommodate these new urban residents is colossal”, says Mr. Malhotra.

“Sustainable buildings key to Asian cities’ rapid expansion”
Superblocks
A superblock is a self-sufficient integrated development that comprises residential and commercial buildings, as well as health, education and entertainment facilities.

Photo: Grand Indonesia featuring 32 Schindler elevators and 159 escalators.

He believes that Asian cities will continue their vertical expansion, given the density and the demographics of the population with millions of educated young couples forming household and also for the sake of achieving high efficiency through the confluence of economic activities. This translates into a steady growth of demand for elevators and escalators as cities continue to move upwards.

“Taller buildings, high-traffic environments present challenges that only new and pioneering vertical and horizontal transportation concepts can address”, explains Mr. Malhotra.

In particular, Mr. Malhotra has witnessed the emergence of the industry’s shift for more sustainable buildings in increasingly dense vertical cities.

“Thanks to years of intensive product and system R&D, Schindler is well positioned to provide the construction industry with ground-breaking solutions in vertical mobility which save energy and achieve unparalleled building traffic efficiency, while meeting the most stringent international safety and environmental standards.”

Environmental thinking has for a long time been a top priority for JSG, since the energy-efficient planetary gearbox, a major breakthrough, was introduced in the mid-1990s. This was followed by a string of other inventions: the Power Factor One converters, which feed energy generated by elevators back into the power grid; energy-saving modes on escalators; and ground-breaking traffic management solutions, such as the Schindler ID traffic management system.

“Over the years, JSG has firmly established its leading reputation in the area of green technologies. I see this combination of smart, high-performance systems and resolutely green features as the winning factor behind our cooperation with famed developers who hold core, strategic views on sustainability”, concludes Mr. Malhotra.
Indonesia’s economic boom
Following the government’s acquisition and restructuring of corporate assets and nonperforming loans in the wake of the 1997 Asian financial crisis, Indonesia has enjoyed steady economic growth at an average rate of 5.2% per annum between 2000 and 2010, a pace exceeded only by China and India.

In the process, Indonesia joined the ranks of the world’s fastest-growing economies. By 2011, its GDP had surged to become the world’s 16th largest and the country had firmly established itself as a member of the G20 economies. Projections indicate that Indonesia’s prominence in the global economy will continue to rise, and could see it claim the position of the world’s 7th largest economy in less than two decades.

Urbanization and vertical expansion
The real estate sector has thrived amidst a booming economy, healthy growth in domestic and foreign investment, strong private consumption and a rapid urbanization that has and will continue to transform Indonesian cities.

As of 2012, 53% of Indonesia’s population lived in urban areas. This number is projected to rise to 71% by 2030 as an estimated 32 million people move from rural to urban areas. As the population increasingly opts for city living, a burgeoning middle class is driving demand for office, residential and retail space.

The mounting demand for space has fostered the vertical expansion of Jakarta and other Indonesian cities with more than 2 million inhabitants such as Medan, Bandung, Surabaya and parts of Greater Jakarta.

New high-rise projects in the plans or under construction
Jakarta’s vertical growth has proceeded with great haste over the past 5 years, as developers have promptly responded to meet the rising demand for more upscale office spaces and condominiums. In addition to many new high-rise buildings, nearly 25 superblocks – self-sufficient mega structures comprising office, residential and retail spaces – have shot up across the city.

A number of significant projects are scheduled for completion over the next 5 years. Colliers International projects that by
2017, nearly 70 new office buildings will be completed in both the CBD (mostly Sudirman) and Outside CBD (mostly South Jakarta).

“While the rapid development of soaring grade A office towers, high-end residential buildings and luxury hotels has mostly taken place in Jakarta, the trend is expected to rapidly catch on in other cities within the next decade”, explains Hendrikus Gozali, Managing Director of PT Berca Schindler. Headquartered in Jakarta, Jardine Schindler’s Indonesian subsidiary has branches in Surabaya, Bali, Makassar, Batam, Solo, and Medan.

Projects under planning or construction include the Signature Tower (which at 638 meters and 113 floors high would become the world’s 5th tallest building upon completion), BUMN Tower (600 meters, 100 floors), Pertamina Energy Tower (530 meters, 99 floors), Thamrin Nine Tower (330 meters, 81 floors) and Peruri 88 (389 meters, 88 floors).

The Cemindo Tower (formerly known as Rasuna Tower) at 63 floors and 269 meters high, will feature 22 Schindler 7000s equipped with the PORT Technology as well as 7 Schindler 5400 AE elevators, 3 Schindler 55000 elevators and 4 Schindler 9300 AE escalators. Target completion: 2015

Quick facts

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<thead>
<tr>
<th>Indonesia in 2012</th>
<th>Indonesia in 2030</th>
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<tbody>
<tr>
<td>16th largest economy in the world</td>
<td>7th largest economy in the world</td>
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<tr>
<td>253 million population</td>
<td>280 million population</td>
</tr>
<tr>
<td>45 million consumer class</td>
<td>135 million consumer class</td>
</tr>
<tr>
<td>53% urban population, producing 74% of GDP</td>
<td>71% urban population, producing 86% of GDP</td>
</tr>
<tr>
<td>55 million skilled workers</td>
<td>113 million skilled workers needed</td>
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A technology-driven nation
The country has also shown a taste for advanced technologies. Growing at a rate of 30% per annum, Indonesian internet users are expected to reach 125 million by 2015. And as of today, there are 180 million mobile subscribers in Indonesia.

As for Schindler, almost 90% of all recently awarded new high-rise contracts will feature one of Schindler’s proprietary advanced technologies, notably including its latest generation PORT Technology transit management system.

Among the many projects currently under construction, the Cemindo Tower (formerly known as Rasuna Tower), The Convergence, Thamrin Nine, Chase Tower, Bahana Tower, International Finance Center 2 and the St Regis will all be powered by PORT.

Schindler in Indonesia
JSG, which incorporated its Indonesian subsidiary in 1998, has been tending to the local vertical wave from its very beginning.

Its success there is the result of a strategic alliance with the Central Cipta Murdaya Group. PT Berca Schindler has been providing sophisticated solutions to many prestigious developments such as Grand Indonesia, Cemindo Tower (formerly known as Rasuna Tower), Ciputra World Jakarta, Senayan City, Menara Prima and Bakrie Tower.

The company has been gearing up to meet the needs of the increasingly sophisticated market. With deep roots in the country, where it has built a strong operation and technical base, Schindler is well prepared to cater to the future growth of Jakarta’s skyline.

“Over the past decade, we have substantially expanded our local teams and resources amidst Indonesia’s rapid vertical development. Steps that have been taken include setting up a dedicated top range team to effectively handle complex projects. An extensive training center is also under construction to facilitate the transfer of know-how from the Schindler Group at large”, explains Hendrikus.
Thamrin Nine Tower 1 – Indonesia’s Tallest Building in 2017

Schindler is currently installing the elevator and escalator systems in Thamrin Nine Tower 1. Alvin Gozali, the President Director of the development company of what will become in 2017 Indonesia’s tallest skyscraper, shares his vision for the new landmark with Vertical World.

“We are very excited to commission Schindler for Thamrin Nine’s demanding vertical transportation needs. With an expected 25,000 potential tenants in the mixed use complex in Thamrin Nine, we require an elevator company which brings quality, reliability, technology and great safety into the mix. This is to ensure the building will provide exceptionally low waiting times, a great flow, thus bringing ease and convenience from one area to another in our massive 5,500,000 square feet building area”, Mr. Gozali explains.

“We are very confident in Schindler’s product and installation works. With a mandate to provide office tenants a vertical transportation system with a high handling capacity and low waiting interval times, without transferring lifts, Schindler and our design team have engineered a unique mobility solution that will set a new benchmark in the market.”

“We are looking forward to showcasing this system which will be the fastest and most advanced lifts here in Jakarta, Indonesia, the largest metropolis in Southeast Asia.”

Alvin Gozali, President
Director of PT Putra Gaya Wahana

Thamrin Nine Tower 1, Indonesia

<table>
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<tr>
<th>Floors</th>
<th>81, Indonesia’s tallest when completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>330 m</td>
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<tr>
<td>Square feet</td>
<td>5,500,000</td>
</tr>
<tr>
<td>Completion</td>
<td>2017</td>
</tr>
<tr>
<td>Usage</td>
<td>Mixed-use (office, retail and hotel)</td>
</tr>
<tr>
<td>Mobility:</td>
<td>32 high-speed elevators up to a speed of 8m/s, 34 escalators, PORT &amp; Lobby Vision and a special 4.5 tons elevator that will be able to transport vehicles to a height of 280 meters within less than 2.5 minutes.</td>
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Rethinking Future Cities

On 3 December 2014, Dr. Paul Friedli, Head of Advanced Development of Schindler, addressed attendees of the 2014 APAC Innovation Summit (AIS) in Hong Kong on the theme of rethinking the future urban environment.

Both an innovator and an entrepreneur in numerous fields of science and technology, Dr. Friedli’s many achievements include being the founding father of the first practical elevator destination control, the Miconic 10 in 1992. His further innovation in this area led to the development of the revolutionary PORT Technology products, which Schindler has been offering worldwide very successfully.

Dr. Friedli’s spoke on the general theme of innovation and the challenge of re-imagining the urban environment to meet the needs of the next 30 years, a challenge which he perceives to be critically important. He explained those needs cannot be met by simply continuing to duplicate the same designs that have been applied over the last century. Instead, Schindler took the major step five years ago to start shifting away from a traditional model centered on concentrated groups of elevators to a new model taking into account the entire journey through a building. This important shift means many constraints on designs could be lifted, with this realization leading to Schindler’s renewed engagement with the architectural community.

Dr. Friedli discussed how this new approach would be relevant to building a sustainable urban environment. His views are that urban development over the last century has often taken place along two directions: high-density, vertical cities, and horizontal sprawls, both models being sub-optimal. He is convinced that viable alternatives exist, which could cater for the upcoming growth in urban populations without severely deteriorating living conditions.

The Village: This concept of new urban model aims to minimize a building’s footprint while maximizing the surface area above with green space is prioritized on the roof top. The architectural starting point is an inverted pyramid like typology.

Photo credit: Schindler Transit Management Group, Studio Schwitalla, ETH Zurich, Aedas Network Campus

About the APAC Innovation Summit (AIS)
The AIS is the annual signature event of Hong Kong Science and Technology Parks Corporation and is organized with the support of Hong Kong’s universities, R&D centers and over 70 trade associations. With “Shaping the Future” as its theme this year, the AIS aims at creating a landmark forum where leading minds and influencer can inspire through new thinking models and engage in forward-looking dialogue on policy implementation and market adaptation in an Asian context.
Following his speech, conference participants were invited to experience Schindler’s award-winning immersive presentation technology, dubbed the Dome. The facility provides 40 spectators at a time with a spectacular viewing experience within an 11 meter geodesic dome powered by four projectors and surround sound. This virtual reality environment, coupled with specifically prepared contents, eloquently supports the sharing of Schindler’s vision for the next generation of sustainable urban development and future cities. Meant to be a source of inspiration for people involved in shaping the world’s cities, the Dome once again did not fail to impress its audience.

Schindler Transit Management Group proudly presented the 6.5-meter height award-winning immersive Dome presentation at the Inno Design Tech Expo 2014 in the Hong Kong Convention and Exhibition Centre.

The Dome presentation was attended by international and Hong Kong policy makers, as well as key developers and architects.

**Left (from left):**
Dr. Paul Friedli; Mr. Gregory So, Secretary for Commerce and Economic Development, HKSAR Government; Mr. John Mizon, Vice President, Advanced Programs, Schindler Group.

**Right (from left):**
Mr. Max Schwitalla, Studio Schwitalla Germany; Dr. Paul Friedli; Mrs Fanny Law, Chairperson of Hong Kong Science and Technology Parks.
Global Urbanization is the Driver

According to UN-Habitat, as global urbanization continues, 60% of the world’s population will live in cities in 2030. Some experts fear that continuing to radically deploy the existing concepts of urban development may lead to an explosion of both high-density clusters of high rises on one hand, and slums, on the other hand.

Dr. Friedli believes it is now time to rethink and ask the question: “what if we can think differently to improve the quality of life in our existing and future cities?”.

Spiral Town

Photo credit: Schindler Transit Management Group, Studio Schwitalla, ETH-Zurich, Aedas Network Campus
Driver

Together with the ETH Zurich, Schindler’s Transit Management Group has been studying new forms of architectural typology that are nothing short of visionary. Together they address issues of space, mobility and resources.

“What if we can think differently to improve the quality of life in our existing and future cities?”

Dr. Paul Friedli

Spiral Town

Spiral Town is one such new form, a theoretical experiment that provokes new thinking about the way we design cities.

Contrary to the traditional, concrete filled city center with suburbs and green space that surround it, Spiral Town is inverted, containing a green heart surrounded by its built environment.

The structure is designed as a vertical spiral reaching around 300 meters in height, with a 5% grade to enable lightweight trains to reach the top.

Linear horizontal distances are compressed and the hazard of urban sprawl is reduced. This results in the inversion of the traditional city section. Buildings that used to be grounded and occupy valuable green space, are now hanging beneath the structure, allowing the sloping green space to become a continuous belt uniting Spiral Town. This enables green space to be generated instead of consumed by buildings.

Spiral Town preserves green space.
For a long while, elevator companies have been highly influential in determining the basic configuration of tall buildings and this has made such configurations the object of only incremental improvements based on new control concepts.

This was destined to change with the introduction of Schindler’s PORT Technology five years ago, which paved the way for a complete re-examination of the urban landscape based on a far greater freedom of design for architects who employed this system. The PORT Technology is the 3rd and latest generation of destination control systems pioneered by Schindler.

On 3rd December 2014 in Hong Kong, Schindler unveiled a smartphone-based application known as myPORT, which enables the PORT Technology system to reach its full potential. With myPORT, all of PORT’s early promises come to fruition with a whole new way for people to interface with their environment, which leads in turn to a fundamentally new approach to building design.

MyPORT is not a simple phone application but rather an integrated mobile strategy that provides building owners with much greater security and occupants with the freedom to gain access and move throughout the building using their own smartphones.

4-step “e-Banking” Security

As soon as an occupant enters the building, their smartphone, equipped with the myPORT application, is detected as part of a multi-level security check which goes on in the background.

The occupant can then gain entry to the building by simply using their PIN code or Touch ID to unlock their phone and then presenting it to a PORT terminal to be assigned an elevator. What for the user appears to be a very simple process is actually an “e-banking level” authentication where in the background, the system uses a combination of timing, building topology and multiple data channels to perform a 4-step security verification.

Once access to the building has been granted, there is a very high degree of confidence that the owner of the smartphone has the right to be there. Hence from that moment, doors can be opened, pre-programmed elevators assigned and life in general made much more convenient, all without removing the smartphone from their pocket.
Once inside the building, the smartphone owner is automatically granted access to an elevator, and ultimately her office, without any further need to present her device to any sensor.
**Visitor access via smartphone**

For visitors, myPORT provides a control system that can grant access to anyone with a smartphone, regardless of whether they have the myPORT application installed or not. Anyone may be given the authorization to visit in the form of a SMS generated by the host’s myPORT visitor feature.

When a visitor arrives at the building, they can click on an embedded link in the SMS and, if their visit is still valid, they will be sent a special video code which can be shown to the PORT terminal in order to gain entry. The video code is a Schindler invention which allows very quick access without requiring the phone to be held still, in a specific orientation or at a specific distance from the PORT camera-reader.

Dr. Friedli officially unveiled myPORT at the Inno Design Tech Expo 2014.

**Addressing special mobility needs**

myPORT removes the need for disabled people to learn the intricacies of a specific building’s control systems since their journey can be controlled from the smartphone they are already familiar with. Schindler is working with the Independent Living Resource Center in San Francisco, an organization whose mission is to ensure that people with disabilities are full social and economic partners. The goal is to ensure that myPORT’s features for the disabled are designed by those who will actually use them and will be as powerful as they can possibly be.

In day-to-day use, myPORT promises to make people’s lives a lot more convenient and secure but the wider implications are much more significant. Dr. Paul Friedli, Schindler’s Head of Advanced Research and the father of the PORT Technology, explained the combination of the PORT Technology and myPORT will help release many constraints on building planning and allow for significant deviations from conventional models. “These implications are many, very exciting and appear to offer the ability to solve many of the problems that the need for rapid urbanisation is currently causing in our cities”, said Dr. Friedli.
PORT at Home

Whether at work, home or in between, the PORT Technology delivers more comfort, greater security and a lot more convenience. It all starts when leaving the apartment. At the door, the weather can be checked, real-time power consumption monitored or messages picked up. More importantly, an elevator can be requested from inside the apartment, so that it can be there waiting for you by the time you reach it.

When myPORT is enabled, all access and transportation needs above could be carried out with the occupant’s personal smartphone.

A PORT user interacts with her apartment’s command and control console to check the weather before ordering her elevator.

Visitor to myPORT-enabled apartments

myPORT can be used in conjunction with a PORT Technology visitor station so that any visitor in the lobby can have their image and voice sent directly to the myPORT-equipped smartphone of the resident, regardless of whether they are in the building or not. For instance, if a resident agrees to grant a visitor admission, pressing a simple button in myPORT allows the gate to be opened, an elevator pre-programmed to the correct floor to be assigned and, if required, the final apartment door to be unlocked.

The myPORT apartment system includes an intercom module which allows visits to be handled via the home console or from anywhere via the resident’s smartphone.

Pressing a simple button in myPORT grants entry to the building, assigns an elevator and, if required, unlock the apartment door.
Enabling the Mega High-rises

While the invention of the double-deck (DD) elevator dates back to the 1930s, it is only in the past decades, with the advent of the mega high-rises, that they have become more ubiquitous. As economies prosper and land available for construction near urban centers becomes scarce, fast-growing Asian cities tend to go increasingly vertical and new projects keep pushing the boundaries of engineering prowess.

The Heron Tower, London

| Floors | 46 |
| Height | 230 m |
| Square feet | 442,928 |
| Completed | 2011 |
| Elevators | 16, including 10 DD elevators |
| Usage | Office building & restaurants |
The concept of a DD elevator is simple yet elegant. While a single-deck (SD) elevator consists of only one elevator car traveling along a given shaft, a DD elevator consists of two cars with one mounted on top of the other, and which are able to service two adjacent floors at the same time. This design boosts traffic handling capacity and reduces the required shaft area, thus freeing valuable building space.

A versatile mobility solution, DD elevators can provide both a direct shuttle service from the main lobby to the sky lobby and an all-floor service.

Ping An Finance Centre, Shenzhen:

Maximum height with minimum number of hoistways

Currently under construction, the Ping An Finance Centre is a 115-story super tall skyscraper located in Shenzhen’s new central business district and commissioned by Ping An Insurance, one of the largest insurance firms in China. Standing at a staggering 660 meters, the new landmark will become the world’s third tallest building.

Mega high-rises necessitate a mobility solution allowing to serve more than a hundred floors with only a reasonable number of shafts. The costs of building taller are higher and each additional shaft comes at the cost of valuable space.

The DD model is an ideal solution for a project of this size with an expected huge population. The mammoth project will feature 33 Schindler 7000 DD elevators powered by the PORT Technology, delivering smart and super-efficient mobility throughout the building.

By planning every occupant’s journey and providing them with the means to reach their destinations quickly and easily, PORT will optimize the operation of the entire building with integrated access, guidance, transportation and security.

Double-deck and transit management

Schindler DD elevators come equipped with an all-inclusive transit management system – the PORT Technology – to ensure buildings reap their full operational efficiency. By grouping passengers according to their destinations and having DD elevators service two floors simultaneously, PORT ensures that nearly twice as many passengers are transported on each car trip.

The PORT control system eliminates potential issues associated with conventional DD elevators, where, as passengers key in their destinations inside the car, one deck may service many floors while the other deck does not. PORT can also effectively separate the usage of both decks, for instance allocating one to the transport of passengers and one to the transport of goods.

In this feature, we look at how Schindler DD elevators are being deployed in three very special projects where the technology makes a remarkable difference.
International Commerce Centre, Hong Kong: Ultra efficient mobility serving over 20,000 passengers daily

Soaring at 490 meters, the 118-story International Commerce Centre in Kowloon is the tallest building in Hong Kong. Developed by the MTR Corporation and Sun Hung Kai Properties, the grade A office tower was completed in 2010.

The ICC is a city in itself where everyday over 20,000 tenants and visitors go through its doors.

A unique solution had to be found to cater to such a massive flow of passengers. A multi-level lobby connecting the various transportation modes, filters occupants and directs them to an ingenious system of local elevators (office floor are divided into four different zones) and high-speed shuttles to sky lobbies for the upper office floors, the Sky100 observation gallery and hotel.

Boasting several world’s firsts, the ICC contains 85 elevators and 39 escalators and is equipped with no less than 40 DD elevators, 18 of them travelling at speeds of 9 meters per second, an outstanding feat given the significant weight of the elevator car.

The longest run for a DD elevator is an impressive 396 meters and taken together, the ICC’s elevator shafts stretch more than 14 kilometers.

The levels of performance required for the prestigious office building were achieved thanks to PORT, which breathes life into the vast and complex elevator system and makes the journey of every building occupant a smooth and convenient one.

The passenger’s view

Upon entering the building, passengers are guided to either the lower or upper landing for boarding, depending on whether they are traveling to an odd or even floor. There they input their destination floor at the PORT terminal and are immediately guided to the assigned elevator.

When only one deck is answering a call, the other deck does not open its doors. An audio-visual message announces “Other deck being served”.

For inter-floor service

Passengers can travel between any two floors, without knowing which deck they are using, until they reach the main lobby.
Maximizing Traffic Efficiency with PORT Technology

The PORT Technology makes it possible for Schindler double-deck elevators to double handling capacity.

Running on a powerful algorithm, PORT effectively groups passengers going to the same destination floors on both decks and calculates the shortest possible trip for each passenger with minimum intermediate stops. This eliminates the problem of repeated stops that would cause long waits for passengers on both decks.

A double-deck offering inter-floor travel
PORT allows inter-floor traffic that does not require passengers to change deck or elevator. Both decks can serve any floor for inter-floor travel.

Efficient segregation of usage
PORT enables effective segregation of usage of the two decks, for instance when a requirement arises for the upper deck to carry passengers and the lower deck to carry goods.
The Heron Tower, London: Double the Views

Completed in 2011 and standing at 230 meters, the Heron Tower is the tallest building in the City of London financial district.

Designed by architects Kohn Pedersen Fox and built almost entirely of glass and steel, the Heron Tower incorporates a few defining features, notably the grouping of floors around eleven 3-story villages, with an atrium at the center of each village.

The architects paid special attention to the elevators, insisting that their appearance be in tune with the rest of building. Turning that vision into reality was the job of Schindler Design Engineer, Simon Müller.

“The reason the architects were so passionate about the usually hidden components was precisely because occupants are able to see every part of the elevator,” Simon Müller explains. “The passenger elevators are made almost entirely of glass; the only other material used is the steel for the structure and components.”

PORT allocates occupants and visitors an elevator taking the fastest route to their village. The tower features ten DD glass elevators, six of which are embedded in the perimeter wall. Visible from the street below, the glass cars glide up and down the structure, offering passengers spectacular views of London as they climb at speeds of up to seven meters per second.
Mega builds 2014

VietinBank Business Centre, Hanoi, Vietnam
75 elevators and 46 escalators
VietinBank Business Centre, Hanoi, Vietnam

To be completed by 2017
Developer: VietinBank
Architect: Foster + Partners, London

Bringing together VietinBank headquarters, hotel and residential space, as well as commercial and leisure facilities, the landmark project is strategically located between central Hanoi and the airport. The 300,000 square meters mixed-use development, testifying to the emergence of Vietnam as an international financial center comprises two towers. The taller tower, rising at 363 meters with 68 stories, will provide an energy-efficient new headquarters for VietinBank, one of Vietnam’s largest banking groups, while the smaller tower, meant for hotel and residential use, will be 250-meter high with 48 stories.

Fastest double-deck elevators in Vietnam

Schindler will supply 75 elevators and 46 escalators, including 6 Schindler double-deck elevators traveling at speeds of up to 10 meters per second, an engineering feat that will make them the fastest double-deck elevators in Vietnam. The project will be equipped with 42 Schindler 7000 high-rise elevators, 23 Schindler 5500 elevators and 46 Schindler 9300 AE escalators. Schindler’s PORT technology will power the elevator group in the office tower to deliver a highly efficient, intuitive and personalized building transit experience.

Changi Airport Terminal 4, Singapore

To be completed by 2017
Developer: Changi Airport Group
Architect: SAA Architects Pte Ltd

Scheduled for completion in 2017, Terminal 4 will bring Changi Airport’s annual handling capacity from 66 to 82 million passengers. Built on the site of the former Budget Terminal, Terminal 4 will be a 25-meter high building with a gross floor area of 195,000 square meters. The heart of the terminal will feature a 300-meter long Central Galleria, separating the public zone from the restricted zone. Terminal 4 will also include a new 68-meter ramp control tower.

Schindler will supply 49 elevators (including 23 Schindler 5500 elevators), 19 escalators, 11 moving walks and 21 dumbwaiters for Terminal 4, and provide maintenance services over 20 years.
Barangaroo, Sydney, Australia

To be completed by 2015
Developer: New South Wales Government / Lend Lease
Architect: Rogers Stirk Harbour + Partners

Covering a total area of 22 hectares on the city’s harbor, Barangaroo is currently Sydney’s largest property development. It is an entire city quarter in itself and aims to demonstrate how urban populations can live sustainably.

The development includes a waterfront promenade, a mix of commercial, retail, residential and cultural facilities as well as hotels and conferencing areas, civic facilities and improved transport infrastructure.

Barangaroo is designed with a vision to be the first development in Sydney that is entirely ‘climate positive’, i.e. to generate at least as much energy and water as it consumes and to recycle more waste than it generates. To complement this green vision, Schindler will supply Schindler 7000 elevators with VDI A-rating for energy efficiency and Power Factor One technology, an energy-recuperation system that feeds regenerated power back into the building’s electricity grid.

Upon completion, the development will house 106 Schindler elevators for the three office towers in the commercial hub. All of the elevators will be piloted by Schindler’s PORT Technology, which enables occupants to reach their destinations quickly and easily.
The Parisian Macao, Macau

To be completed by 2015
Developer:  Las Vegas Sands
Architect:  Aedas

Scheduled for completion in late 2015, The Parisian Macao will be Sands China’s fourth development on the Cotai Strip in Macao, together with the Venetian Macao, The Plaza Macao and Sands Cotai Central.

The unmistakable centerpiece of the Paris-themed development will be a half-size replica of the Eiffel Tower. The resort will comprise 3,000 hotel rooms and suites, as well as 300,000 square feet of retail space. Upon opening, the combined Shoppes at Parisian, Shoppes at Four Seasons, Shoppes at Venetian and Shoppes at Cotai Central will be the largest luxury duty-free retail area in an integrated resort in Asia.

The project comprises the installation of Schindler’s 85 elevators and 46 escalators in The Parisian Macao’s three buildings: the Podium, the Hotel Tower and the Eiffel Tower replica.
A Partnership which takes you to the top

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