
JOHNSON & JOHNSON'S CHOICE OF REGIONAL HEADQUARTERS AND INNOVATION HUB: WHY SINGAPORE?

It was November 2019. Ong Ai Hua, Group Chairman, Asia Pacific, of Johnson & Johnson (J&J) had just finished her six-week wellness programme with the company's newly launched curriculum by the Human Performance Institute (HPI) in Singapore. Thanks to the wellness programme, Ong had been able to change her eating habits from three meals to five small meals a day. As she munched her lunch, Ong ruminated over the history of J&J's presence in Singapore over the last many years and its prospects going forward. Singapore was a regional headquarters (RHQ) and a strategic hub for the company, with several initiatives being spearheaded from the city before being implemented on a large scale across other markets in the region. Innovation was at the core of J&J's strategy, both globally and regionally, and one of the key reasons J&J had set up its RHQ in Singapore was because of its infrastructure and availability of high-quality research institutes.

Competition between locations as a choice for RHQ within APAC had grown considerably over the years. China was a major market for J&J, as were India and Japan. Over the years, all three countries had developed high-quality expertise and infrastructure facilities. In addition, cities like Shanghai, Hong Kong and Tokyo had emerged as RHQ choices for many multinational companies because of their proximity to large markets in the region.

So far, much of Singapore's competitive advantage had been derived from several factors including its geographic location, political stability, focus on innovation and ease of doing business. However, Ong wondered if these advantages were sufficient to support the long-term positioning of the city as the regional hub of J&J. Could the innovation-ecosystem in Singapore be the differentiating factor for the RHQ amidst rising competition?

J&J

Found by three brothers in New Jersey, US, in 1885, J&J began its journey as a manufacturer of ready-to-use surgical dressings. The company expanded into Asia in 1931. In 1959, J&J acquired McNeil Laboratories in US and Cilag Chemie, AG in Europe. The two acquisitions enabled the company to gain a foothold in the field of pharmaceutical medicine.

In 1961, J&J made one of its most significant acquisitions – that of Belgium company Janssen Pharmaceutical. Janssen was one of the world's leading research-based

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pharma companies producing prescription medicines, and its acquisition put J&J at the forefront of the global pharmaceutical industry. Over the next few decades, J&J experienced significant growth across the globe, organically as well as through strategic acquisitions, and by 2018, it had recorded worldwide sales of US\$82 billion.

In 2018, J&J relocated its RHQ for APAC in Singapore, and assembled all its offices under one roof - in a state-of-the-art facility in the city's Science Park 2 complex. It also established three new institutes in the new office, with each catering to a different strategic focus for the RHQ in the region.

Singapore

Singapore had been a clear choice for J&J to position its RHQ. Over the years, the city-state had been very successful in attracting many multinational companies to set up their regional headquarters in the country. A range of firms, including the technology giant Microsoft, and the pharmaceutical company GlaxoSmithKline, had set up their RHQs in Singapore.¹

In a survey conducted for Japanese companies with RHQs in Singapore, favourable access to nearby countries, ready accessibility to business information and English being widely spoken were the top reasons cited for the choice of Singapore as a location for RHQ functions.² In fact, Singapore was widely perceived to be a 'global city' with unique connections to the outside world, which functioned as a centre of command and control that provided MNCs with global reach.³ Like London and New York, it had been recognised as a RHQ choice given the access it offered to advanced producer services (such as marketing, accounting, law, and finance), its cosmopolitan environment and extensive connectedness to local and global markets.⁴

Singapore thus had a number of desirable features for firms looking to set up their RHQs; it had been consistently ranked high in ease of doing business and the strength of its legal system, in addition to having a well-qualified workforce and highly ranked universities for the hiring and training of talent.

The political stability of Singapore, the high quality of life, and the supporting infrastructure of banking and logistics services had served to increase its attractiveness as a launching pad into the region. Besides, being in the same time zone as China and having a large proportion of the workforce that was bilingual in English and Chinese had enabled Singapore to act as a bridge between the East and the West. Finally, Singapore's location and travel connectivity to multiple countries in the region cemented its offering as the location of choice for APAC's RHQs.⁵

1 Phillip Kotler and Milton Kotler, "Winning Global Markets: How Businesses Invest and Prosper in the World's High-Growth Cities", John Wiley & Sons, New Jersey, 2014, <https://www.wiley.com/...p-9781118893814>, accessed November 2019.

2 "The 4th Survey on the Regional (RHQ) functions of Japanese Companies in Singapore", Jetro Singapore, December 2015, https://www.jetro.go.jp/ext_images/singapore/pdf/rhq_report_eng.pdf, accessed January 2019.

3 René Belderbos, Helen S. Du, and Anthony Goerzen, "Global Cities, Connectivity, and the Location Choice of MNC Regional", Journal of Management Studies, Volume 54, July 2017, https://www.researchgate.net/Global_Cities_Connectivity_and_the_Location_Choice_of_MNC_Regional_ss, accessed November 2019.

4 Ibid.

5 Ibid.

Biomedical Sciences Cluster

Until the 1990s, manufacturing-related industrial development efforts in Singapore had rested on three pillars: electronics, chemicals and engineering. At the turn of the century, biomedical sciences was envisaged as a fourth pillar to ensure Singapore's continued economic diversification as well as long-term competitiveness. The term 'biomedical sciences' was interpreted quite broadly to refer to anything related to the discovery, development and commercialisation of healthcare products and services ultimately designed to diagnose or treat human diseases. The cluster spanned four different industries: pharmaceuticals, medical devices technology, biotechnology and healthcare services. The ambition was for Singapore to ultimately become a 'plug & play' location of choice for all related value-chain activities in biomedical sciences, for both MNCs and domestic firms.⁶

The Singapore government made significant investments to establish the city as a biomedical sciences (BMS) cluster over the years. In the BMS sector, in addition to J&J, other leaders with RHQs in Singapore were Novartis, Carl Zeiss, Philips, GlaxoSmithKline, Bayer (AG), Ferring, and Pfizer.⁷

As the healthcare industry channelled more and more resources towards open innovation globally, Singapore responded to the call by building a holistic MedTech innovation and commercialisation ecosystem that could bring together start-ups, multinational corporations, and providers of various supporting services.⁸ The Singapore government also showed keen interest and released several grants and direct investments in university research with the objective of promoting the development of new products and systems.

Positioning the J&J RHQ and Innovation Hub

J&J had had a long-standing history in Singapore and started operating its regional headquarters for the APAC region from the city-state in 1974. As an organisation, J&J followed a somewhat decentralised strategy. The leadership team and some of the primary functions for APAC, such as supply chain, treasury, quality, marketing, human resources, finance and accounting and enterprise engineering services, were managed from the Singapore office, while other initiatives, such as sales, were handled locally for each country. Ong elaborated,

Our company always strives to be more effective. Being closer to the customer is one way of doing that. Hence, regional hubs help us strengthen our roots within that market. Our RHQ here allows us to spearhead and map out strategic initiatives that we feel will give us a competitive advantage in the APAC region, which is the fastest-growing region geographically for J&J.

Reflecting on the management decision of the company to locate its RHQ in Singapore, Ong added,

⁶ Ibid.

⁷ "APAC Regional Headquarters, Singapore on Top, But Competition to Increase", Cushman & Wakefield Research, 2016, http://www.cushmanwakefield.com/2016_F4.pdf, accessed November 2019.

⁸ Jennifer Silvi, "How Open Innovation is Transforming Healthcare", World Economic Forum, 17 February 2015, <https://www.weforum.org/agenda/2015/02/how-open-innovation-is-transforming-healthcare/>, accessed November 2019.

Singapore is politically stable and has a strong rule of law. Singapore also has great connectivity and a world class airport which makes it a good headquarters location for people travelling within Asia to US and Europe. The government is open to changing business needs and the innovation ecosystem is becoming richer and more integrated across industries, adding attractiveness and even more incentives for us to continue our RHQ from here.

According to a study conducted in 2016, Singapore remained the region's most established healthcare hub.⁹ Although Singapore had some definite advantages to help it sustain that position, in the long-run, there had been some concerns as well. The challenges that the city-state faced in being the RHQ choice included its distance from China (the driving market in the region), the restrictions on foreign labour, high cost of living, high operational costs and limited land supply.¹⁰ In addition, there were other considerations as well, as Ong elaborated,

Singapore has a small population base plus being a much more structured market, it does not reflect the complexities and composition of larger markets in Asia from consumers' needs to healthcare systems. However, this sophisticated, small-sized market and diverse multi-racial population has its unique value for companies seeking to pilot new ideas, new offerings and insights to achieving deeper insights into the epidemiology of the Asian population etc., What this means is that the Singapore workforce has got to work harder to stay relevant, offer skills and capabilities to capture its unique differentiation and continuously raise the bar.

On the other hand, where Singapore plays a differentiated role compared to other leading cities in the region is its capability of churning the innovation wheel efficiently and frequently. Unfortunately, that space requires a set of expertise that the local population does not necessarily have. The challenge, therefore, is – how do we raise the bar to stay relevant and ahead of the game as a country that remains the go-to-choice for housing a multinational RHQ?

The area covered by the APAC hub of J&J was quite large and extended from India in the west to Japan in the east; China in the north to New Zealand in the south. Ong noted, "Corporations organise Asia Pacific (AP) structure quite differently. Some group AP without China and/or Japan and these two markets go directly to global. For J&J, AP comprises all AP countries, including China and Japan."

From the supply chain perspective, Singapore acted as an APAC hub primarily for healthcare products due to its location, customs efficiency, connectivity and mature infrastructure. Basing its end-to-end logistics management for the region in Singapore allowed J&J to leverage these advantageous factors.

Marketing of various products in J&J comprised mainly of local initiatives. However, Singapore was a launchpad and testbed for beauty and wellness products due to its relatively trendy and well-informed populace. Commenting on the Medical Devices and Pharmaceutical products, Shane Pang, Head of Government Affairs & Policy Southeast Asia at J&J, added,

For marketing of Medical Devices and Pharmaceutical products, each country has its own team. However, in the digital age, there has been quite a shift in terms of consumption of information, and how we engage our doctors and hospitals via digital

⁹ Ibid.

¹⁰ Ibid.

channels is key. Therefore, we try to incorporate analytics to build engagement with our consumers. How is Singapore different for regulations in marketing?

In the Medical Devices and Pharmaceutical industry, more time is needed for a product to be developed and obtain all regulatory requirements, before it can be introduced to patients. As a reference, typical drug development takes 10-15 years. In Asia, culture plays a role as well and it is sometimes not easy to get things to move fast. Our efforts in Asia are focused on bridging this gap to allow solutions to reach patients faster once they have been launched.

Expanding J&J's RHQ footprint in Singapore with brownfield economic investments

In 2018, J&J further expanded its footprint in Singapore and set up its new headquarters at Singapore's Science Park. The office housed two new key facilities - a Leadership Lab and a Design Lab - to spur innovative ways of working in the region and drive deeper collaboration with partners across the entire healthcare ecosystem, including government bodies, healthcare agencies and academic institutions. It housed more than 1,400 employees from the Consumer, Medical Devices and Pharmaceutical businesses, all under one roof.

The Leadership Lab was a state-of-the-art training facility aimed at developing healthcare leaders with the capability and skills required to thrive in a competitive and changing environment. The Leadership Lab was designed to serve as a think tank for innovation, research, exchange and dialogue. It was also accessible to a broader community of healthcare leaders in Singapore and the region, including companies outside the J&J eco-system. In essence, the Leadership Lab was envisaged as a platform for people to co-create and drive innovative solutions for the future of healthcare.

J&J's Singapore headquarters was also home to the company's first Design Lab outside New York City. Fuelled by local insights and research, the Design Lab was focused on creating products and solutions that could spur the growth of a regional pipeline of products designed in APAC for both the region and globally.

Tapping on the Innovation Ecosystem in Singapore

The establishment of the two labs in the Singapore office had enabled J&J to extend the existing capabilities of its RHQ. What remained to be seen was whether such initiatives could bolster the company's scientific strength and forge new collaborations to change the trajectory of healthcare in APAC.

Building an innovation eco-system was one of the key strategies implemented by J&J globally. The company believed that the ecosystem approach to innovation, leveraging talent both inside and outside of the company, was the best way to respond to a competitive, ever-changing environment. Ong added,

If leaders want to build a sustainable growth engine for the company, they need to create the right conditions for the best ideas to get picked up.

J&J's Singapore RHQ had been especially receptive to this strategy, which differentiated it from the other key offices of the company in the region. The Singapore RHQ used a variety of approaches to work with a large number of external partners to tap on their

knowledge and technologies. Such strategic innovation had also helped complement more traditional approaches, including R&D alliances, licensing agreements and dedicated infrastructure.

From the perspective of being a hub for innovation in the APAC region, J&J recognised the cruciality of an effective IP protection strategy in enabling a firm to forge ahead in innovation. Ong commented,

Although IP protection laws are country-specific, the IP environment and where and how the IP is held is a crucial consideration. Singapore has a favourable legal environment for IP, and hence is an obvious choice for IP ownership in the region.

The outside-in approach of owning the IP of external parties within its innovation ecosystem allowed the RHQ to advance and enrich the company's knowledge base through the integration of suppliers, customers, and external knowledge sourcing.

The ease of doing business in Singapore had also motivated many start-ups to germinate in the city. One example was the Quickfire Challenge launched by J&J in collaboration with Exploit Technologies Pte Ltd (ETPL), an arm of Singapore's Agency for Science, Technology and Research (A*STAR), and Singapore-MIT Alliance for Research and Technology (SMART) at its RHQ in 2017. The initiative was established to promote Metabolic Disease Innovation to attract game-changing, early-stage innovations that addressed this critical health concern. Such inside-out collaborations had allowed J&J to combine external and internal ideas to advance the development of new technologies.

Collaborative innovation initiatives had other additional benefits as well – participants like universities and start-ups could access the complementary skills and commercialisation expertise of J&J.

Open innovation was at the core of J&J's innovation strategy, both regionally and globally. In 2009, Paul Stoffels, then Chairman of Pharmaceutical Research and Development at J&J, had summed up the company's innovation focus,

At J&J, we are shifting our innovation ecosystem toward an open innovation model, tapping into both institutes of scientific excellence and our research and development centres across the world. Our scientists are taking a networked approach across internal organisational disciplines and geographies, including Asia and other emerging markets, and increasingly with external public and private partners to generate ideas and intellectual property. By working with experts at other companies, universities, and research institutes, we tap a wider range of expertise, capabilities, and resources. Together we share in both the benefits and costs of innovation that will yield more useful technologies and solutions that will contribute to new advances in healthcare.¹¹

Towards that direction, J&J had tried to build open innovation capabilities by tapping on its innovation eco-system both in APAC and globally across its offices, as showcased below.

¹¹ "The Promise of Open Innovation, Johnson & Johnson, Our Company", Feb 3, 2009, <https://www.jnj.com/our-company/the-promise-of-open-innovation>, accessed November 2019.

3D printing

In 2013, Singapore had identified 3D printing as an area of focus and promoted innovation in 3D printing manufacturing.¹² J&J and many other healthcare companies were increasingly using 3D printing for medical devices, and having accessibility to innovative and more efficient 3D printing solutions had helped the company target products for unmet user needs in the MedTech area.

To further build knowledge in the MedTech arena, J&J sponsored a bio-design thought leadership exchange platform in 2019 called J&J Vision, to showcase innovative ophthalmology by researchers in Singapore. This bio-design programme was a joint-partnership between A*STAR, EDB and Stanford University. Modelled after the established bio-design programme at Stanford University, the capability development initiative was aimed at training and nurturing the next generation of medical technology innovators in Singapore and Asia.¹³

Data Science and Analytics in Finance

As part of the open innovation drive, the finance team at J&J's RHQ in Singapore had gone through a transformation journey and invested in building an AI-based system that integrated all the operational and financial planning processes under financial planning and accounting (FP&A). The solution utilised predictive analytics for Profit & Loss (P&L), cash flow and balance sheet forecasting.

For starters, all data were pulled from various enterprise resource planning units and moved to a Business Warehouse and then to the Finance Warehouse. Data visualisation was a key objective, and dashboards and scorecards were built using the data, to enable senior leaders to quickly understand business performance and identify new growth opportunities. The visualisation tools helped deliver easy-to-absorb insights around KPIs like R&D as a percentage of sales, regional sales variances, or the number of clinical trials currently in progress. These snapshots could clearly outline how specific drivers had performed over time and how they were expected to perform in the future.

The senior leadership at J&J decided to roll off the AI-based solutions deployed by the finance function in the RHQ across all the offices worldwide. While implementing the AI-based solutions, the focus was on upskilling existing talent rather than retrenching existing staff and hiring new staff with requisite technical skillsets. Keyur Shah, Senior Finance Director, APAC, explained,

We developed a single data source for all the financial planning and reporting. We then implemented a third-party workflow solution called Alteryx, which allowed the finance analysts to design the reporting capabilities in a self-service manner and automate the production of the final reports. This allowed finance analysts to move from generating manual reports to spend more time on business partnering and delivering financial insights. We also implemented a planning system with data analytic capabilities and an automated management review deck, that is not only efficient but also promotes a standardised review process.

¹² "Unleash the Power of 3D Printing", EDB, News and Events, June 14, 2017, <https://www.edb.gov.sg/en/news-and-events/insights/innovation/unleash-the-power-of-3d-printing-.html>, accessed November 2019.

¹³ Singapore Bio Design, "Empowering Asia's Healthtech Innovators of Tomorrow", <http://www.ssbiodesign.org/about>, accessed November 2019.

As part of their transformation journey, the finance team at Singapore RHQ also implemented a talent incubator programme to equip finance and accounting professionals with future-ready skills in advanced analytics and forecasting. Since a lot of the incoming data received by the finance function changed more or less dynamically, the finance team has had to be nimble and agile. Shah added,

We created a small sub-team in Asia with Data Science capabilities. The team has now become our global capability as we are trying to roll out our AI-based automated financial systems across all our J&J offices.

In addition to building a data analytics platform, the finance team also developed a machine-learning model to track sales, and in some markets, the model was able to accurately predict sales. Shah added,

In markets like Japan where sales numbers were reasonably stable, the model worked very well. On the other hand, in markets like China where there are a lot of dynamics involved, the results from the model were slightly less accurate. Global sales forecasting at an enterprise level is driving better outcome than the manual forecasts done earlier. We are now moving to a world of augmented AI, where AI and finance professionals can work together in tandem to improve each other.

We have multiple proofs of concepts on how we can use natural language generation (NLG) to generate budget versus actual kind of commentary that every finance division across the world works month on month to create. Such AI generated commentary gives a head start to the analysts who will then spend time in enriching the commentaries further with more business collaboration.

The ultimate goal was to prioritise analytics based on feasibility (data availability and ease of process integration) and impact by identifying the top use cases that could create the greatest value for the business and be able to do that quickly. By thinking out of the box and incorporating innovation in solution finding and execution, the finance team at J&J had been able to operationalise analytics such that insights could lead to direct impact on revenue and cost.

Beyond 2020: Sustainability of the Singapore RHQ and Innovation Hub

Looking into the future, Ong could see that retaining Singapore as a regional hub had some clear advantages for J&J. Its connectivity, efficient airports and shipping ports positioned the city admirably as a logistic hub and regional hub. Singapore was known to be safe and stable city; its added dimensions of culture, nature, sports and good education system made it an attractive location for human talent and their families to live and work.

On top of that, its pro-business policies and support from government agencies who strove to proactively foresee the changing needs of MNCs, allowed Singapore to remain a competitive destination of choice. This in turn helped J&J expand its innovation ecosystem and accelerate its momentum in coming up with new solutions in healthcare and wellness for the APAC region, and in some cases build new solutions for the global market. The presence of a leadership team in the RHQ that was attuned to the commercialisation of these innovative solutions, both regionally and globally, further helped address the mission of the company.¹⁴ However, the rising cost of infrastructure

14 Johnson & Johnson, Vision, <https://www.jjvision.com/about-us>, accessed November 2019.

and living in Singapore was a concern.¹⁵

Although Singapore continued to be the preferred RHQ base for J&J, Ong realised that there were other attractive locations in the APAC region which were increasingly attracting MNCs to locate their RHQs there. In 2019, more than 700 MNCs had their RHQs in Shanghai alone.¹⁶

China was steadily rising through the ease of business rankings, and the biggest factor in favour of China was the huge market base that it offered. In the past, China had an underdeveloped internal market, the dominant local therapeutic method was Traditional Chinese Medicine (TCM), and consumer care and MedTech products offered by MNCs were not in the grasp of large swathes of society. Collaboration with external partners was an issue as English was not a wide lingua franca, and the educational system did not have a high reputation in the life sciences.¹⁷

However, in the last few years, China's economy had burgeoned; it had a huge internal middle-class market that was more open to BMS products and consumer care products that were priced for the upper-middle class. Most significantly, China had become a global leader in innovation capabilities in many sectors like telecom network design, logistical platforms, AI, machine learning, deep learning, and quantum computing.¹⁸

Other cities in the APAC region that offered both advantages and challenges included Tokyo, Hong Kong, Sydney and Seoul, though each of these cities provided their own set of challenges to MNCs for setting up RHQs.

While co-location had been widely recognised as one of the drivers towards the effectiveness of the innovation ecosystem, emerging technologies like hologrammatic communication could make the need for the RHQ model outdated. In the R&D space, the need for a skilled workforce could be alleviated by employing technologies like AI, machine learning and deep learning.

There were a number of firms globally who were using machine intelligence for development and evaluation models in innovation, and these technologies could aid innovation in the BMS sector as well. For the purpose of collaboration, blockchain technology could be an important source of cybersecurity, enabling firms to share data for collaboration more securely over longer distances.

The use of Internet of Things (IoT) was also likely to increase in the BMS sector over time for monitoring and understanding the evolution of diseases, which would in turn, reduce the need for being close to the consumer for R&D and market research. The increased use of 3D printing devices could make Singapore's advantage as a logistical hub in the region less salient, as designs could be shared virtually and printed locally.

Would Singapore continue to remain an attractive destination as an RHQ for J&J? Could the innovation ecosystem of Singapore be the sustained differentiating factor for the country? As Ong looked out of her office at the lush greenery lining Science Park Drive, she smiled wryly and wished that her crystal ball would be as clear as the beckoning landscape.

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ Ibid.