

3. Intangible Economic Impact

During the course of the study, the Data Centre Sector was identified by both industry players and stakeholders as a critical infrastructure for the rest of the economy. This was validated through both secondary research and through the use of pre-defined Hypotheses. The Hypotheses were generated through a series of internal discussions with industry research analysts, and cross-validated through discussions with stakeholders. These Hypotheses were then tested and validated during the interviews.

Summarised below are Hypotheses where the strength of linkage with the Hong Kong economy is deemed to be positive. Even though the impact cannot be quantified, the subsequent benefits attributable are viewed to be important, if not critical to the economy.

Data Centres are Critical Infrastructure Used across Key Industries

To compete as a global city and key financial centre, data centres are critical and can impact Hong Kong's status as a regional hub and financial centre in several ways.

Reliance on Data Centres by Businesses

Data centres are key infrastructure that supports the operations of industries such as Financial Services, Trading and Logistics, IT/Telecommunications and Content/Media. In total, these verticals contribute more than 45 percent of Hong Kong's GDP in 2009 and accounts for more than 84 percent of the total demand for data centre space in Hong Kong. This reflects the dependence of these industries on data centre services.

Regional Data Centres are Typically Sited in the Same Location as Regional Support Operations of Financial Services Players

An environment which encourages the development of data centres *potentially* reduces the risk of regional support operations (e.g. IT functions, Credit Card Operations & Processing) locating in other competing markets. Based on empirical evidence, most financial firms choose to locate their regional support operations in the same location as their regional data

centres. The primary reasons for such decisions include ease of management, availability of skilled manpower, and the overall attractiveness of the location for business.

As can be seen from the table below, most financial institutions have large manpower in the cities where their regional operations and data centres are located. This includes manpower associated with both financial and support operations (e.g. IT, credit card processing).

Table 1: Location of Regional HQs and Data Centres of Financial Institutions in APEJ

Financial Institution	Location of Regional HQ - Asia/Pacific excluding Japan (APEJ)	Location of Regional Data Centre	Total Number of people employed (2009)	
			Hong Kong	Singapore
Goldman Sachs	Hong Kong	Hong Kong	2,000	800
JPMorgan	Hong Kong	Hong Kong	4,000	2,500
HSBC	Hong Kong	Hong Kong	27,000	3,000
Standard Chartered	Hong Kong, Singapore	Hong Kong	12,200	7,800
Credit Suisse	Hong Kong, Singapore	Singapore	1,500	4,800
Citibank	Hong Kong, Singapore	Hong Kong, Singapore	4,000	8,500
Deutsche Bank	Hong Kong, Singapore	Singapore	1,000	1,900

Source: Frost & Sullivan Research and Estimates

As an example, Singapore is Citibank's ASEAN Hub, Regional HQ for Asia Consumer Banking business and a regional Centre of Excellence. Singapore serves as a strategic hub for regional operations and technology expertise and hosts Citibank's state of the art processing and data centres. The centre at Singapore processes 250,000 regional transactions amounting to HKD 935 billion per day for more than 50 countries.

Hence, benefits will accrue to Hong Kong's economy if financial institutions choose to locate key regional support operations in Hong Kong. Providing an attractive data centre environment potentially influences decisions on where these support operations are located.

Data Centre is a Key Enabler for Critical Financial Transactions

Ability to locate the trading platforms of Financial Services players near the Stock Exchange could impact the trading operations of the Financial Services industry due to network latency issues. Algorithmic trading is most affected by network latency as it relies heavily on the ability to instantly recognise arbitrage opportunities and make trades to capture them.

Hence, if Financial Services players' trading platforms cannot be sited near to or co-located within the Stock Exchange data centre due to space constraints, there will be a negative perception on Hong Kong's ability to provide a world-class trading environment. Industry has highlighted that this may increase the risk of losing high value IPO deals in future as algorithmic trading becomes a key component of the global financial market.

Locating Data Centres in Hong Kong Reduces the Operational Risk for Businesses

By 2012, global spending on Cloud Computing is forecasted to grow to HKD 326 billion, making up 9 per cent of total IT spending, indicating an increasing reliance on technology services delivered over the network or 'Cloud'.

If businesses in Hong Kong are to rely on overseas data centres or on Cloud Service Providers who base their data centre operations in overseas locations, the operational risk of businesses increases due to increased exposure to service/network outages. For example, earthquakes or typhoons can cause damage to undersea cables, resulting in businesses losing connectivity to their overseas data centres or Cloud Service Providers, which will adversely impact the operations of businesses in Hong Kong.

Hence, the ability for businesses to locate their data centres in Hong Kong, as well as positioning Hong Kong as an attractive data centre environment for Cloud Computing Service Providers is important in mitigating this risk.

Locating Data Centres in Hong Kong Potentially Act as “Anchors” for Businesses

Independent research indicates that it is highly unlikely for businesses to shift their operations once they invest in capital intensive infrastructure (like data centres). Using data gathered through primary interviews and secondary research, it was estimated that data centres can

account for up to 30 percent of total capital outlay of a regional company (e.g. financial institution) during the initial investment/start-up. Hence, businesses will less likely move their operations to other locations in future due to the high capital investment.

Furthermore, there is potential where the same location will gain preference for future expansion of regional operations. For example, after investing in a data centre and sales/distribution office in Singapore, Bosch announced the setting up of its new regional HQ in Singapore to provide support for more than 200 of its offices based in Southeast Asia. In the pipeline are plans to establish an IT research and development centre.

Data Centres Provide Higher Value Added Job Opportunities

Data centre employees in Hong Kong typically have higher salaries as compared to the average of all industries and provide higher value added per employee. For example, data centre managers in Hong Kong earn approximately HKD 600,000 annually, and Mainframe analysts, system administrators and data centre support engineers – all three roles are critical to the operations of data centres – can earn around HKD 300,000 to HKD 500,000 per year. This also indicates the high skill requirements that these jobs entails.

Furthermore, value added per employee for the Data Centre Sector is also comparatively higher than many other industries as shown below.

Table 2: Employment and Value Added Per Employee across Industries (2009)

Industry	Employment	Value Added per Employee (HKD)
Data Centre Sector (Direct Impact)	2,200	\$727,300
Financial Services	202,809	\$1,111,100
Tourism	197,400	\$263,400
Trading and Logistics	832,800	\$473,900
Professional Services & Other Producer Services ¹ Industries	424,800	\$442,900

Source: Frost & Sullivan's Estimates, Census and Statistics Department, Hong Kong

¹ Producer services refer to services for use by other companies (i.e. intermediate consumption), as well as exports of services to companies and individuals such as freight transport, trade financing and insurance services.