DUTCH DATACENTER ASSOCIATION

2017 REPORT

Economic impact Dutch Data Centers

Pb 7

THE ECONOMIC IMPACT OF MULTI-TENANT DATA CENTERS IN THE NETHERLANDS

Over the last decade we have seen strong growth coming from the total of Dutch multitenant data centers. Multitenant data centers have spread across the country and have become a vital part of the Dutch digital infrastructure. Data centers in the Netherlands provide robust housing for international enterprises, SMEs, the public sector, the IT sector, and digital startups. Most data centers are placed modestly and anonymous in the landscape. Still, they are the physical manifestation of the Dutch Digital Gateway to Europe, increasingly often referred to as the 3rd Dutch mainport.

These modest physical manifestations – data centers – compare palely to the other Dutch mainports, the Port of Rotterdam and Schiphol Airport. By being very capital-intensive as opposed to labour-intensive we could start blaming data centers for destroying jobs. But it would be good to look at the economic impact and get our facts straight. Data centers are the foundation of our whole (digital) economy. Without data centers everything would come to a standstill.

To understand the economic impact of data centers specifically, we can look at GDP contribution, employment, and contribution to taxes such as VAT income taxes, local taxes, and social contributions.

International research

There have been attempts internationally to quantify the indirect economic impact of a data center. In 2014, CBRE conducted an economic and fiscal impact study in a US $1 billion data center development in the US. Over a 10 year period, that included the construction period, a $1 billion data center development, which might provide 30 to 50 jobs, would contribute about $200 million in taxes over a 10 year period. This would compare to the fiscal contribution of a corporate headquarters with 1.700 jobs and a capital investment of $40 million.

Also in 2014, the Boston Consulting Group calculated the impact of a major Facebook data center in Northern Sweden. Next to a direct contribution to the Swedish GDP, BCG also identified multiplier effects: the indirect contribution (spending in the supply chain) was 70%, or a multiplier effect of 1.7, while the induced contribution (spending from employees) added another 60%, or a total multiplier effect of 2.3. We can't compare these case studies directly to the Dutch multi-tenant data center market. We are also not aware of Dutch case studies, but we did take a look at the data that is available and can try to extrapolate to get a good estimate of the contributions from the Dutch market.

[1] Digital Infrastructure and Economic Development. An Impact Assessment of Facebook's data center in Northern Sweden, The Boston Consulting Group, Commissioned by Facebook, June 2014

[2] Extrapolation based on Dutch revenue data from a dozen multi-tenant data centers, taking into account price differences and revenue distributions from large Amsterdam centered groups and smaller regional based data centers. Resale margins are e.g. hosters that rent data center space are not included.

[3] Dutch Data Center Report 2015. State of the Dutch Data Centers. Pb7 Research, commissioned by the Dutch Datacenter Association, 2015

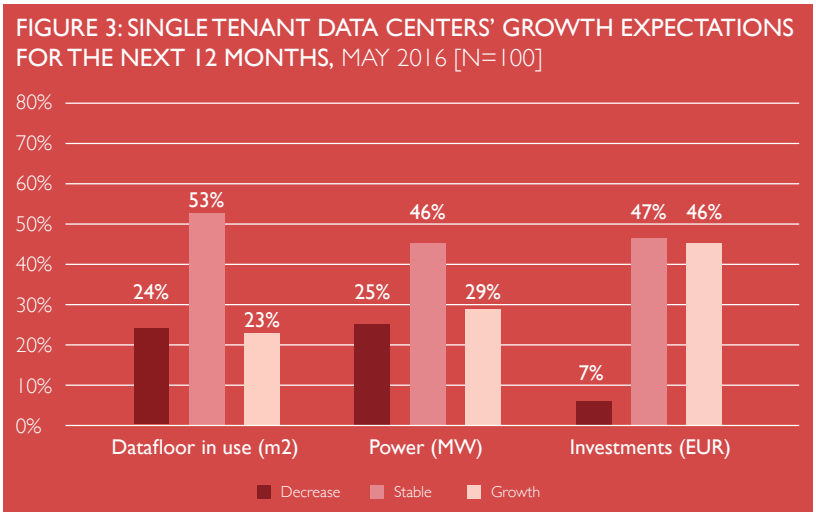
Direct economic impact

Looking at the direct contribution, colocation, the core business of multi-tenant data centers, multitenant data centers in the Netherlands contributed directly EUR 462 million to the GDP in 2015, according to our calculations . Next to colocation, data centers may have other revenue streams. Especially smaller data centers may also provide hosting services and other IT services. Some multi-tenant data centers have a hosting background, or built a data center to support customers with outsourcing services. And some are telecommunications companies. For telecommunications companies, we have only looked at the core data center operation. If we only look at the additional revenues from companies with colocation as the major source of income, we estimate that they brings in an additional EUR 123 million, bringing the total direct GDP contribution to EUR 585 million. If we look at the other key aspect of economic impact, employment, we find that the direct contribution is limited. Data centers are capital intensive, but labour extensive.

The Dutch multitenant data centers provide employment to 2300 people. About 41% of these people have an IT related title. The remaining work in facilities management, including security (20%), commercial roles (22%) and overhead and management (16%).

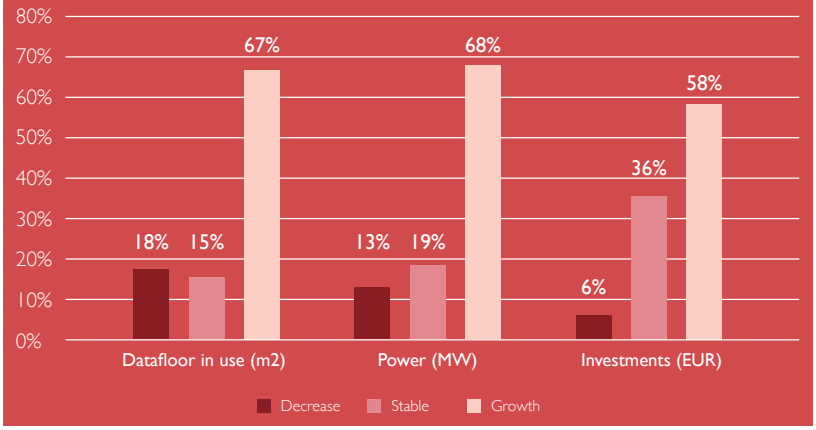
In terms of taxes, we have extrapolated from data that is provided in the input/output tables as measured by the Dutch Central Bureau of Statistics (CBS). For the IT services market as a whole, the total of taxes and social contributions amount to 8% of the total revenues. Since more than 7% comes from social contributions, this percentage is likely to be lower in the data center world, probably at about 4% (based on the labour intensity of the IT services sector as a whole, compared to the data center sector). However, when we assume the paid taxes compare more to the real estate market, this will be around 7%. That means the total of tax and social contributions would amount to about EUR 64 million.

FIGURE 3: SINGLE TENANT DATA CENTERS' GROWTH EXPECTATIONS FOR THE NEXT 12 MONTHS, MAY 2016 [N=100]

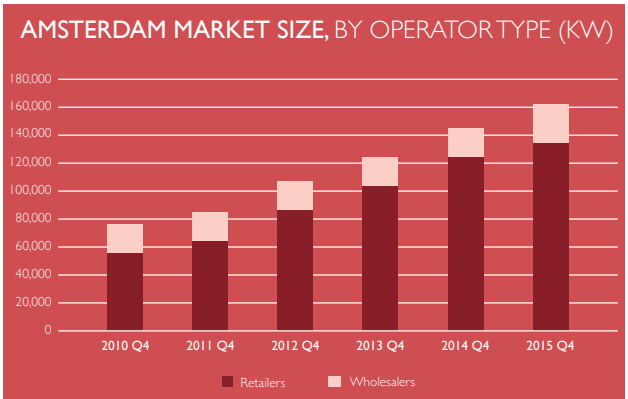


Source: Pb7 Research, 2016

FIGURE 2: MULTITENANT DATA CENTERS' GROWTH EXPECTATIONS FOR THE NEXT 12 MONTHS, MAY 2016 [N=100]



Source: Pb7 Research, 2016



AMSTERDAM SUPPLY (KW)

	2010 Q4	2011 Q4	2012 Q4	2013 Q4	2014 Q4	2015 Q4
Retailers	57,849	62,314	87,789	102,462	122,932	136,577
Wholesalers	17,760	23,410	23,410	22,810	22,810	27,810

Indirect economic impact

In the above paragraphs we discussed the direct impact. But data centers also have an indirect economic impact (or: supply chain impact): construction companies need to be hired to build the facilities, equipment for power and cooling equipment needs to be build and installed, energy (in major amounts) and water is required, and so on. Based on the input/output tables as measured by the Dutch Central Bureau of Statistics (CBS), the indirect GDP contribution of the IT software and services sector as a whole compares to 43% of all revenues. If we argue the data center is more like the real estate market (indirect GDP contribution of 54%), we might argue the indirect contribution is around 50% of all revenues, or EUR 293 million.

When we look at the indirect effect on employment, we assume it is reasonably similar to the Swedish Facebook data center. For every 10 FTE years created directly, 6 FTE years were created in the supply chain. This is probably not the exact number for the Dutch situation, but it is also unlikely to be very different. When we apply this multiplier effect, the Dutch multi-tenant data center market is responsible for about 1300 jobs in the supply chain.

When we apply the average spending on taxes and social contributions to the indirect GDP distribution (6% of revenue), we can also calculate an estimate for the indirect effect on this category: EUR 15 Mln.

Indirect economic impact

To complete the economic impact, we look at the induced impact. This is the impact that is made from employees spending money into the economy, anything from house rent or mortgage to daily groceries. Assuming the average employee in the data center earns EUR 3000 per month, which is slightly above average, plus a holiday allowance, the total induced spending will amount to EUR 67 million. This will also have an induced effect on the employment of about 250. The induced effect on taxes and social contributions then adds up to about EUR 4 million.

Total economic impact

If we take the multiplier effects into account for the GDP contributions, employment and taxes/social contributions, the Dutch multi-tenant data center market adds up to the following numbers below.
We can see that the multiplier effects of multi-tenant data centers turns out significantly lower, compared to the major data center projects in Sweden and the US. In terms of GDP, the indirect multiplier in terms of GDP is 1,5 and the induced effect only slightly higher at 1,6. The multiplier effect in terms of employment are somewhat better: 1,6 and 1,7.

Analysis

The total GDP impact of the multi-tenant data center market was close to EUR 1 Billion, and will most likely surpass that number in 2016. Over the next couple of years, this is expected to grow at a rate quite a bit above the GDP average. Despite this economic impact analysis, we may argue that valuing the market at about EUR 1 billion per year does not do the sector justice. Data centers are the robust foundation of the Internet economy, a market valued at 7.7% of the total GDP according to a discussion paper by the CBS [4]. Arguably, the impact is much larger, since the CBS quantified only the "core Internet economy and most organizations depend to some extent on digital products and services these days.

	Direct	Indirect	Induced	TOTAL
GDP contribution	EUR 585 mln	EUR 293 mln	EUR 67 mln	EUR 941 mln
Employment	2300 FTEs	1300 FTEs	250 FTEs	3850 FTEs
Taxes and social contributions	EUR 64 mln	EUR 15 mln	EUR 4 mln	EUR 83 mln

[4] Measuring the internet economy in The Netherlands: a big data analysis, CBS, 2016

ABOUT THE DUTCH DATACENTER ASSOCIATION

The Dutch Datacenter Association (DDA) is the trade organisation of data centres in the Netherlands, the bedrock of the Dutch economy. The DDA unites leading data centres in the Netherlands in a common mission: the strengthening of economic growth and the profiling of the data centre sector to government, media and society.

The DDA expresses industry views on regulatory and policy issues. It demonstrates leadership by facilitating and encouraging members to implement operational improvements in the form of best practices. The DDA promotes education and contributes to technical standards, which enables the data centre industry in the Netherlands and abroad to further distinguish itself.

The DDA is one of the founders of the umbrella foundation **Digitale Infrastructuur Nederland** (DINL). DINL unites organisations that facilitate the digital infrastructure within the Netherlands. The DDA closely collaborates with **Digital Gateway to Europe**, which promotes the Netherlands as international data hub. The DDA also actively collaborates with market operators, the government and other interested parties.

ABOUT PB7 RESEARCH

Pb7 Research is an independent ICT research firm. We provide independent research and advice, aimed at the successful deployment of new technology in the European market, with a key focus on the Dutch market. Pb7 supports technology marketers and strategists by identifying and analyzing market and competitive opportunities and challenges, technology buyers in making well-informed decisions and we help policy makers with key statistics and market insights.

Pb7 Research is a specialist in IT security, IT professional services, data center infrastructure and services, cloud, and other emerging technologies.

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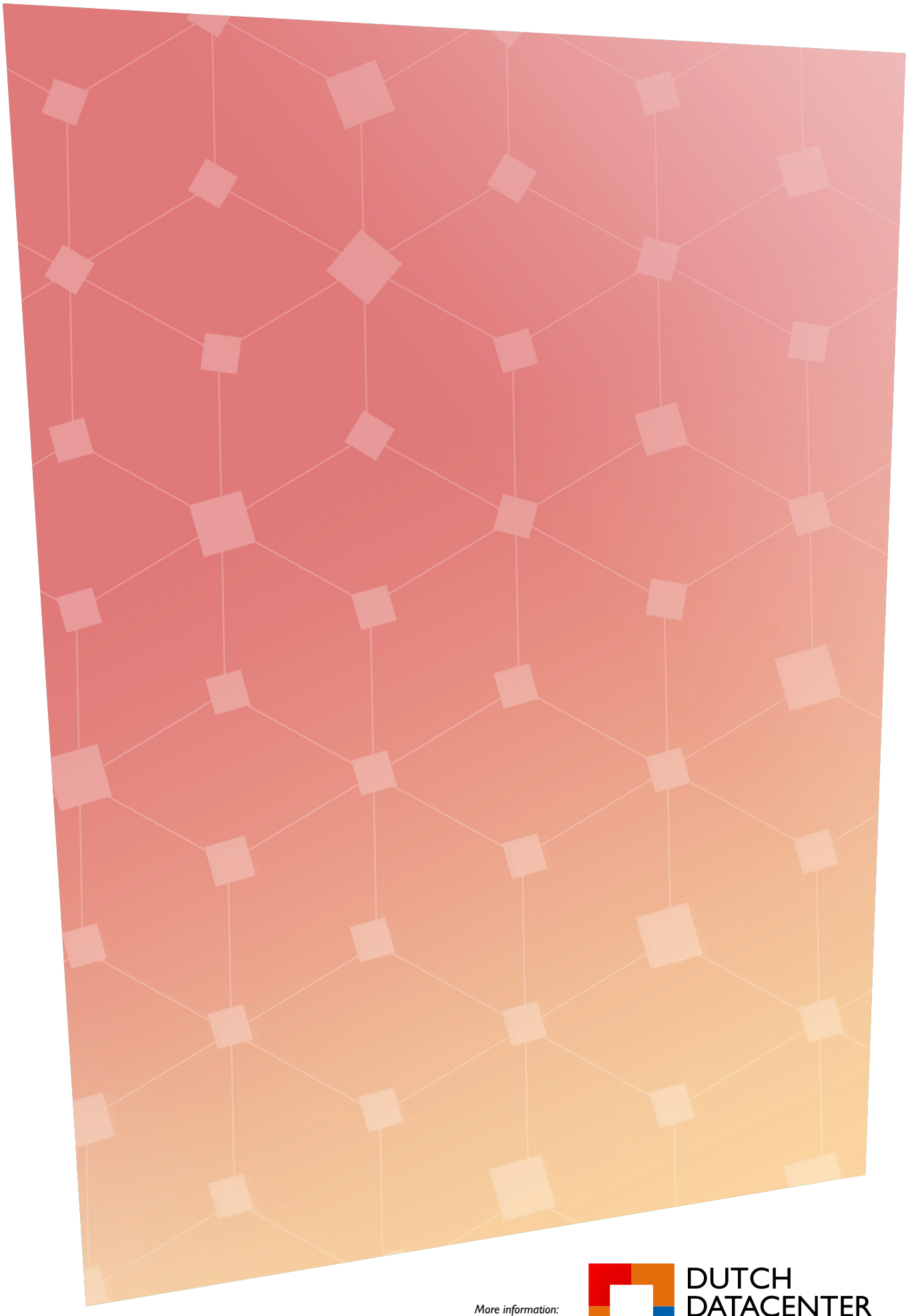

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