



(L-R) AEROFARMS SITE IN NEW JERSEY, US, AND THE PASONA OFFICE FARM IN TOKYO, JAPAN

Farms in the air

Vertical farming promises a fresh start for redundant real estate and some investors bet its profile is only going to grow

BY DOMINIC GOVER

Detroit bred the US rapper Eminem, who in his heyday captured the resilience and anger of the city as it worked to rebound from the collapse of its heavy steel and auto manufacturing industries.

During the long struggle for a renaissance, one trend has been to put to use as vertical farms, urban industrial sites such as redundant offices and former plants. Produce-growing companies and start-ups such as Green Collar Foods moved into empty floors, repurposing space to grow herbs and leafy greens, peppers and strawberries. Today, the niche segment of vertical farming is trending in the US, with investment from high-profile sources such as Google and billionaire, Elon Musk.

As Covid-19 accelerates trends which were already creating empty commercial space in towns and cities, the question is to what extent might Europe emulate Detroit in repurposing vacant properties as ‘farms in the air’, and could such a use make financial sense for asset owners?

At first sight, office and retail space in Europe has plenty of what a vertical farm needs: close proximity to large population centres, a

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good position on the power grid and ready supplies of water. Some market watchers even identify cinemas – and even former cruise ships – as viable potential sites.

MOTHER NATURE EVICTED?

Vertical farms can evoke emotion when it is said they turn the tables on Mother Nature, by upending well established agricultural practices and removing the role of the seasons in the crop cycle. Vertical farming is a high-tech business; vegetables grow in totally controlled interior environments with laboratory-like conditions, without ever being touched by sunlight, wind or rain. Optimal amounts of nutrients, UV light and air are fed through tubes to crops in trays the size of snooker tables, stacked on top of each other. The whole process is overseen by artificial

intelligence, with not a farmer nor combine harvester in sight.

‘I think the time is now for asset owners to consider vertical farms as potential tenants,’ says professor Leo Marcelis of Wageningen University in the Netherlands, which is a European leader in agricultural science and technology. ‘I definitely think disused offices and shopping centres could be repurposed as vertical farms.’

‘The technology itself is very sophisticated, but you do not necessarily need a sophisticated outer skeleton to put it in. The dimensions of the building are important; can they easily contain the stacks of trays? I would like sites which are large scale, with not too low ceilings and larger floor space.’

‘It is a new sector and we need to establish economic viability, since you need a huge investment and running costs are high. I am sure for a number of companies this will be viable, so the only question is how widespread vertical farming becomes.’

Vertical farming is expanding due partly to the eye-catching efficiencies it offers, compared to traditional field and greenhouse growth methods. In the Netherlands, a kilogram of tomatoes in a vertical farm only needs around three litres of water. In

a greenhouse, it is 17 litres. Outdoors in soil, the same tomatoes can use up to 200 litres of water. The yield is therefore fifteen times more efficient than the best greenhouse-grown crops.

UK LEADS

In Europe, it is the UK that leads the way, followed by Germany and then Switzerland. The largest vertical farm outside of the US and Asia is located in the English town of Scunthorpe. Owned and operated by Jones Food Company, it comprises a growing area the size of 26 tennis courts and 12 km of LED lights. Harvests are all-year-round, making seasons redundant.

Across the continent, the vertical farming sector is worth an estimated €50 bn and is in its early research and development phase. Maturation is forecast as being as long as 10 years away, according to UK-based Astarte Capital Partners.

The value-add alternatives investor – which provides institutional capital access to non-traditional real assets strategies – says it is in the process of identifying target investments in the segment.

Stavros Siokos, manager partner, believes vertical farming has appeal for investors with interest in thematic real estate and environmental, social, governance (ESG) issues. ‘Any strategy based upon proximity of assets to population hubs has a good future and we are moving into a world where large spaces will not be as utilised as they were in the past,’ he says. ‘So vertical farming is a big trend with a great future.’

‘I see it as being like renewable energy 20 years ago, when most investors would not consider it, then it became an “alternative” alternative and today it is pretty mainstream.’ In continental Europe, Germany and France are seeing vertical farms attract investors, presaging expansion. For example, Berlin-based Infarm raised €84 mln last year from mainly European investors such as EASME, Atomico, AstanorVentures, Cherry ventures, TriplePoint Capital and Balderston Capital. Meanwhile, Agricool in France has drawn seed capital from Henri Seydoux, Xange, Danone Manifesto Venture, KimaVentures, Daphni, Bpifrance and MarbeufCapital. In this early stage of development for vertical

farming, the segment comes with caveats. In the event it grows big enough to replace office and retail in some cities, then real estate managers and investors look likely to face some jarring financial realities. According to industry watchers PropertyEU consulted, the rent a vertical farm pays might be only 25% of what is normal for a corporate office tenant to pay. However, leases can be long, in the region of 10 years. ‘Vertical farming is like government bonds, whereas office space is like corporate bonds,’ is how one expert puts it.



Europe’s fragmented regulatory framework is also likely to influence how effectively farms can move into buildings vacated by shopping centres and offices. Netherlands-based Cindy Rijswick, of Rabobank, researches the vertical farming investment landscape in the country where much of its hydroponic and aquaponic technology is developed.

‘It is not very demand-driven at present and is often something of a research and development project,’ she says. ‘Vertical farming needs a lot of water and electricity, which will make some existing buildings unfeasible for insurance reasons. Also, the logistical side is an obstacle, with regular heavy traffic from vehicles transporting crops.’

‘From the consumer view there is growing demand for locally produced food and Covid-19 is making this into an even bigger trend. Vertical farms can be a good investment in certain cases, such as if you’re in a

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location with limited competition from conventional growers and you do it efficiently, and you have good customers, then maybe it is possible.’

BRIGHT FUTURE

Talk with UK-based alternatives investor Gresham House and you get an upbeat forecast. Fund manager Paul Bachmann believes typical investor returns of up to 15% for vertical farms are feasible, while implying risk. Gresham House has a substantial – and undisclosed – investment in Fischer Farms, a UK company which uses shipping containers for housing vertical farms. Its methods enable growth on one acre what takes 200 acres to grow in a field, it claims. Gresham House manages the operations and is now looking for sites for a second and third farm by the end of the year, up to six times bigger than the first.

‘There is a real estate component to what we are doing, and property investors should see how they can work with us to build up their property portfolios, rather than sticking too closely to their tried and tested segments,’ Bachmann tells PropertyEU.

‘There may be a play for real estate funds to joining by owning the underlying property and leasing it back to the operating company. ‘You can generate higher yields from this than from traditional asset classes and you’re supporting an asset which supports sustainability goals and ESG.’

‘We think vertical farming has a huge future and I can’t say we’re there yet. But the cyclical macro-trends driving this are only going to accelerate. The sky is the limit.’ ■