

Proximity Analysis

Prepared for Microsoft
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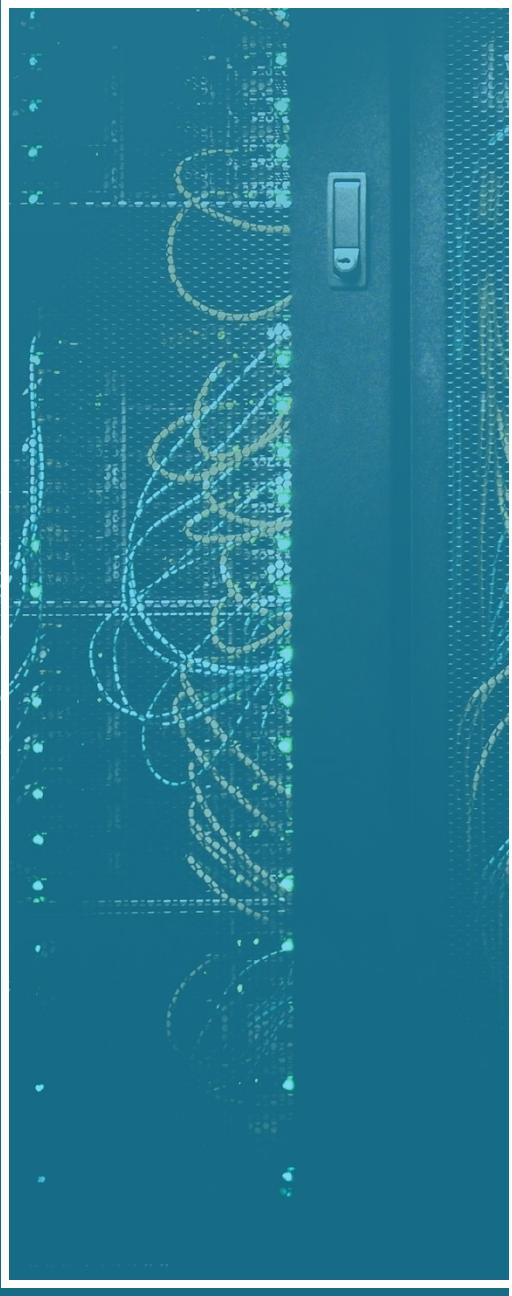
Introduction

- This analysis investigates the proximity of food and beverage (F&B) manufacturing facilities (potential heat offtakers) to Microsoft data centers in Europe.
- It maps data center locations using QGIS and identifies industrial-scale F&B manufacturing facilities within three kilometers (km) of a Microsoft data center.
 - Data center locations were drawn from TeleGeography's Cloud Infrastructure Map. F&B manufacturing sites were compiled from Dun & Bradstreet Hoovers (DnB) and the European Pollutant Release and Transfer Register (E-PRTR). See the Data Sources and Methodology sections for more information.

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Summary of Results

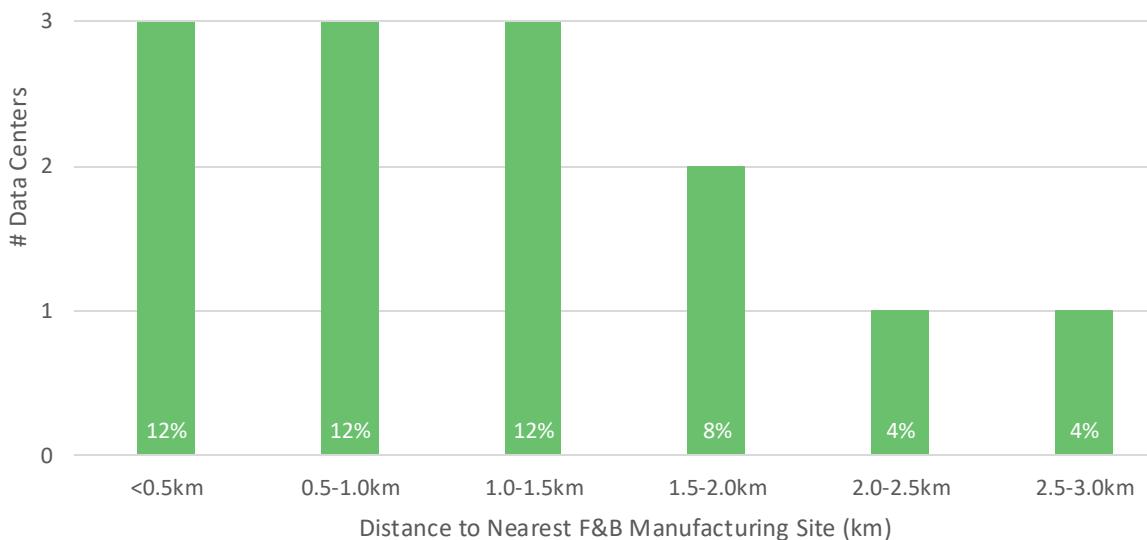


Out of 26 Microsoft data centers in Europe, 50% are within three kilometers of a food and beverage manufacturing site.

23% of data centers are within one kilometer of a manufacturing site.

The average distance to the closest F&B manufacturing site is 3.43 km.

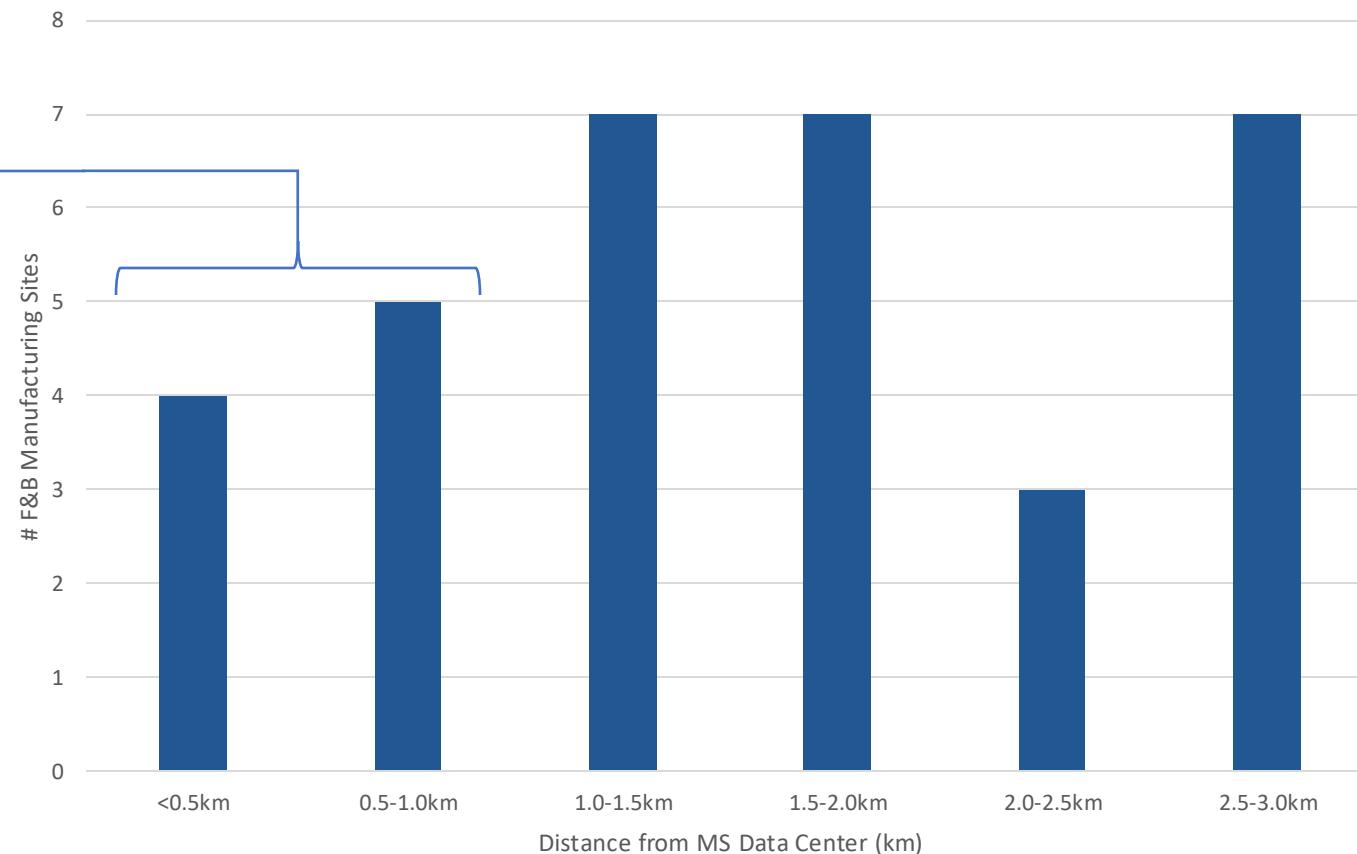
All data centers are within ten kilometers of a manufacturing site.



Percentages shows the proportion of Microsoft data centers in Europe at the given distance from an F&B manufacturing site.

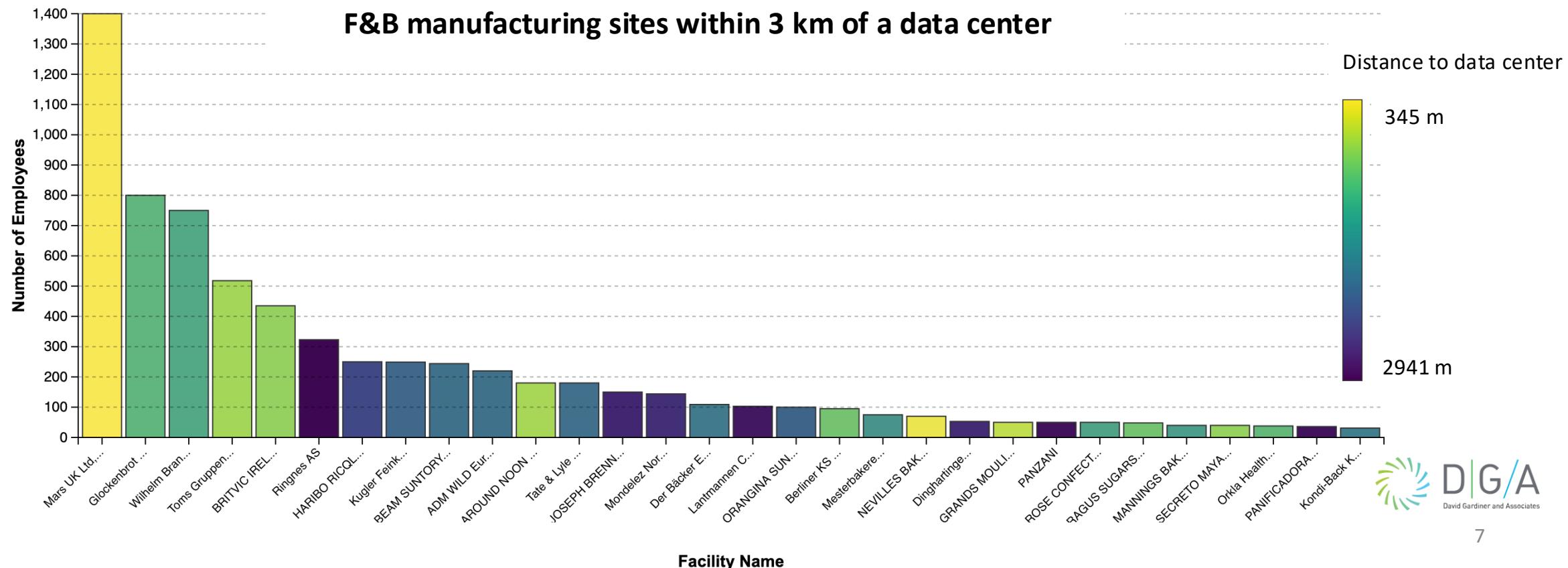
At least 33 food and beverage manufacturing facilities fall within three kilometers of a Microsoft Data Center.

Nine F&B facilities are less than one kilometer away.



F&B manufacturing facilities near data centers are industrial scale.

- The median F&B manufacturing site within three kilometers of a Microsoft data center has 106 employees.
- A single facility owned by Mars, Inc., which is ~350 meters from the Equinix LD5 data center in London, employs 1400 people.

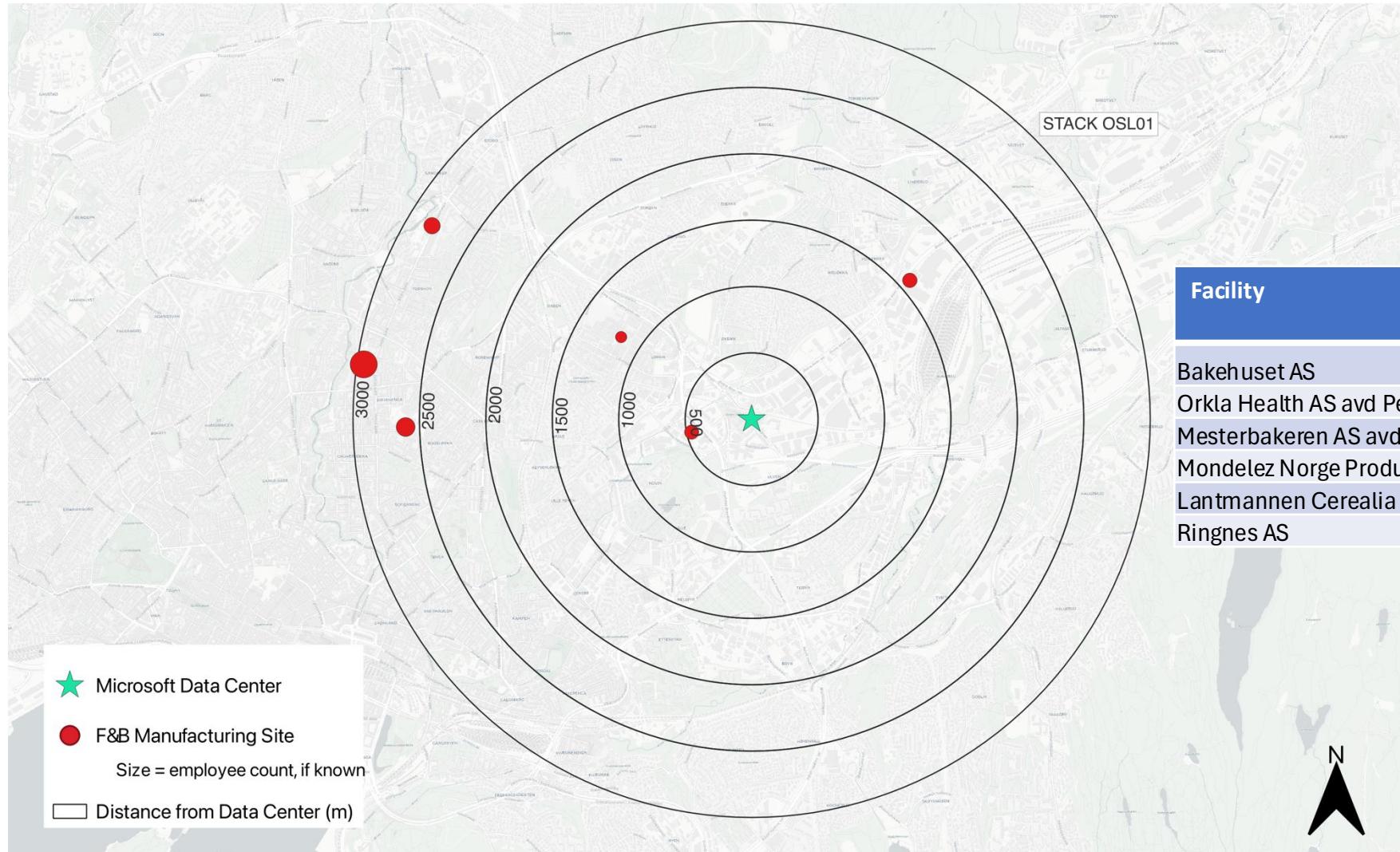


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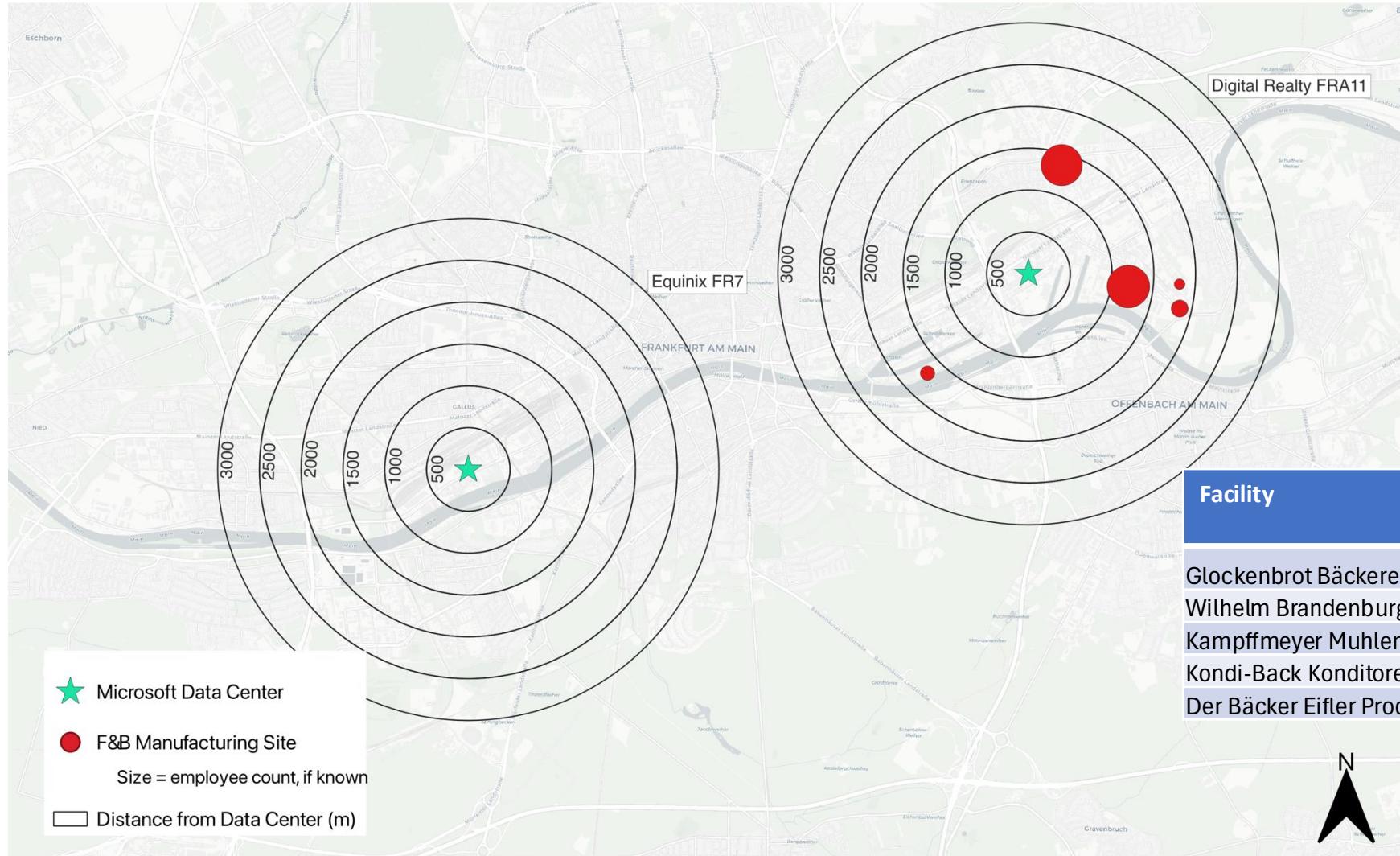
Data Highlights



Oslo



Frankfurt



Facility	Distance (m)	Employees
Glockenbrot Bäckerei GmbH & Co. oHG	1205	800
Wilhelm Brandenburg GmbH & Co. oHG	1357	750
Kampffmeyer Muhlen GmbH Werk...	1695	0
Kondi-Back Konditorei- und Backwaren...	1812	31
Der Bäcker Eifler Produktionsgesellsch...	1857	109



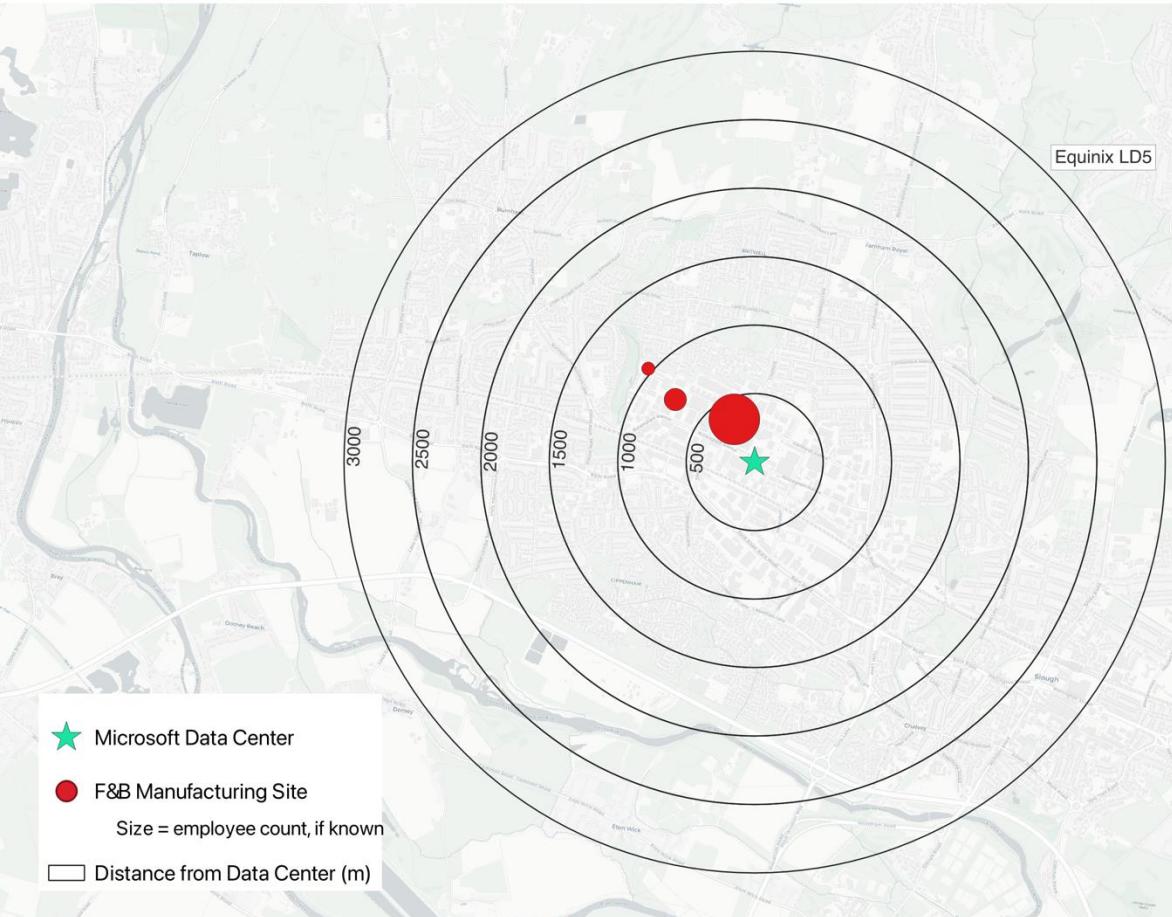
Dublin



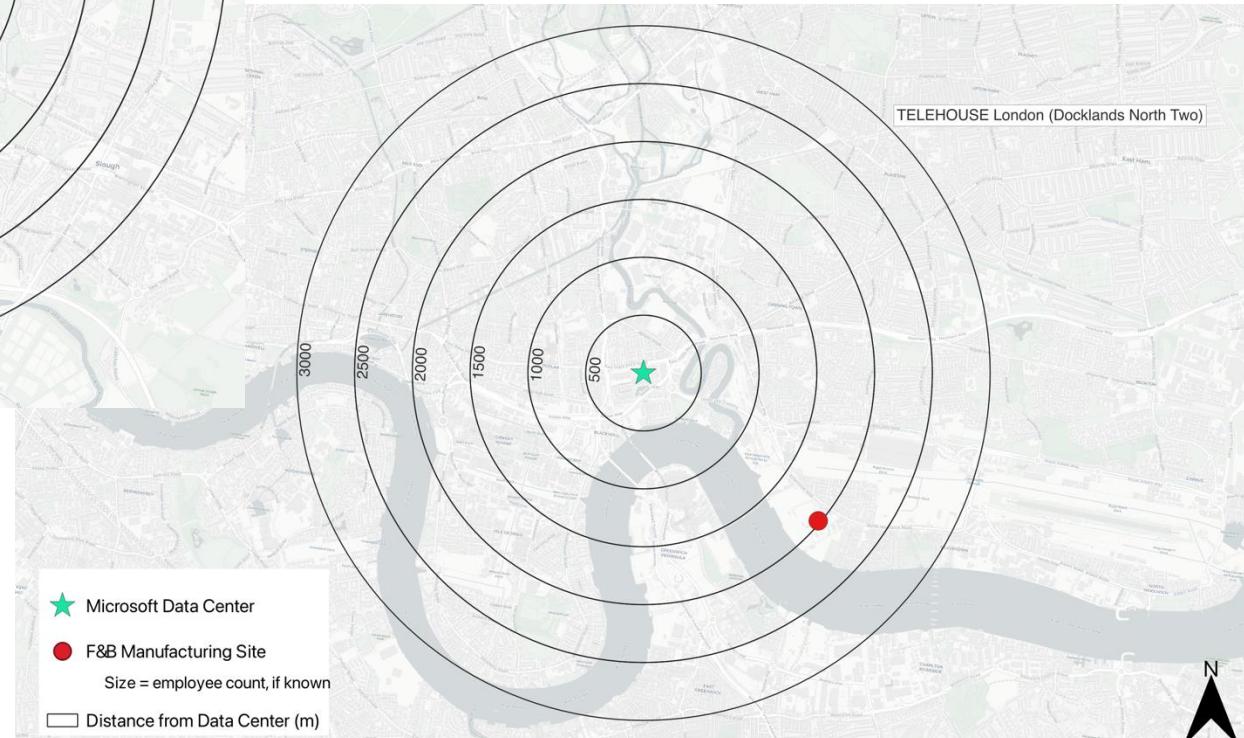
Facility	Distance (m)	Employees
NEVILLE'S BAKERY DUBLIN UNLIMITED...	421	70
R & A Bailey & Company	481	0
BRITVIC IRELAND LIMITED	841	435
ROSE CONFECTIONERY LIMITED	1414	50
MANNINGS BAKERIES LIMITED	1482	40
JOSEPH BRENNAN BAKERIES UNLIMITED...	2685	150

London

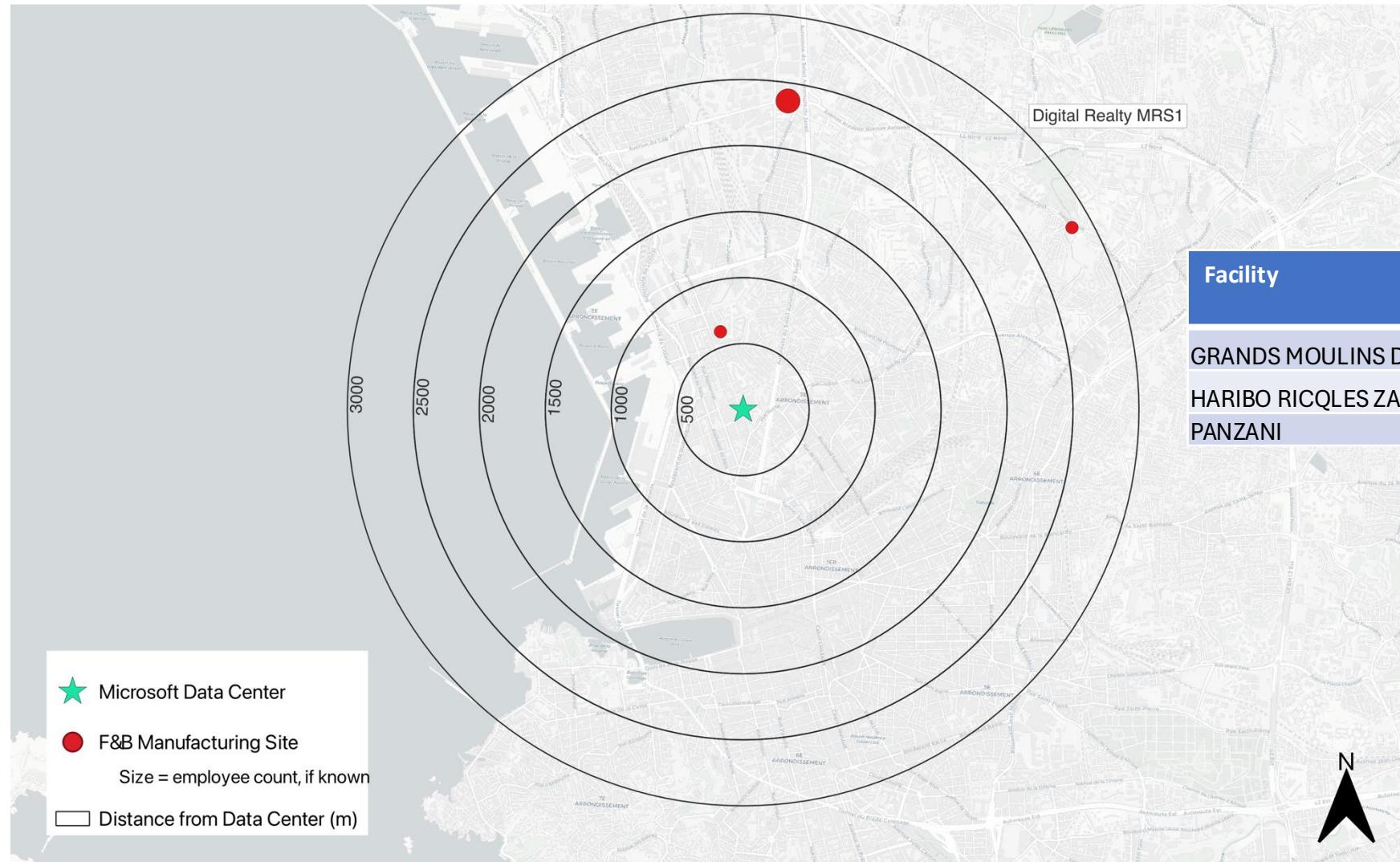
Highlights



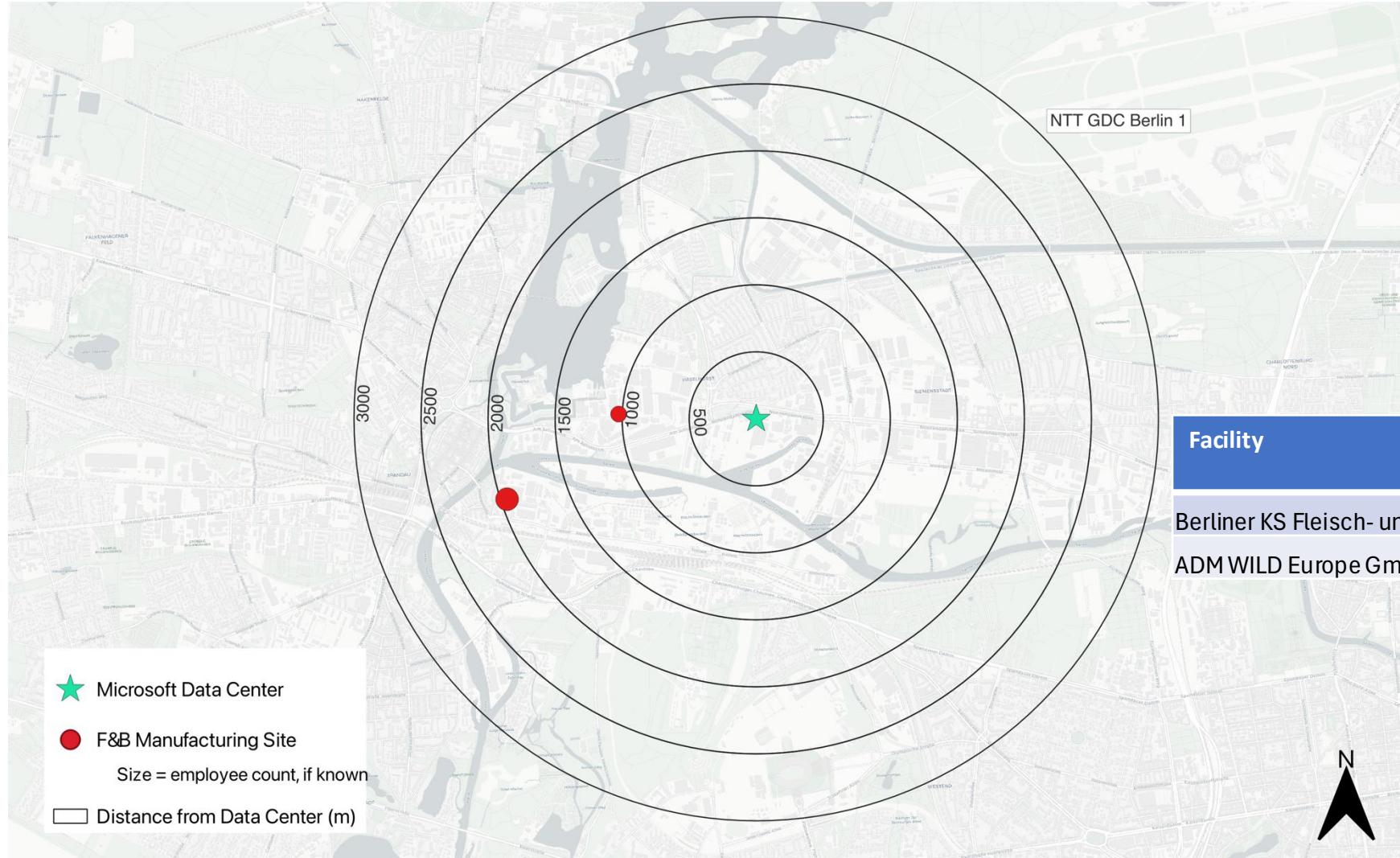
Facility	Distance (m)	Employees
Mars UK Ltd, Slough Chocolate Factory	345	1400
AROUND NOON (LONDON) LIMITED	738	180
RAGUS SUGARS (MANUFACTURING)...	1034	48
Tate & Lyle UK Limited, The Refinery...	1980	180



Marseille



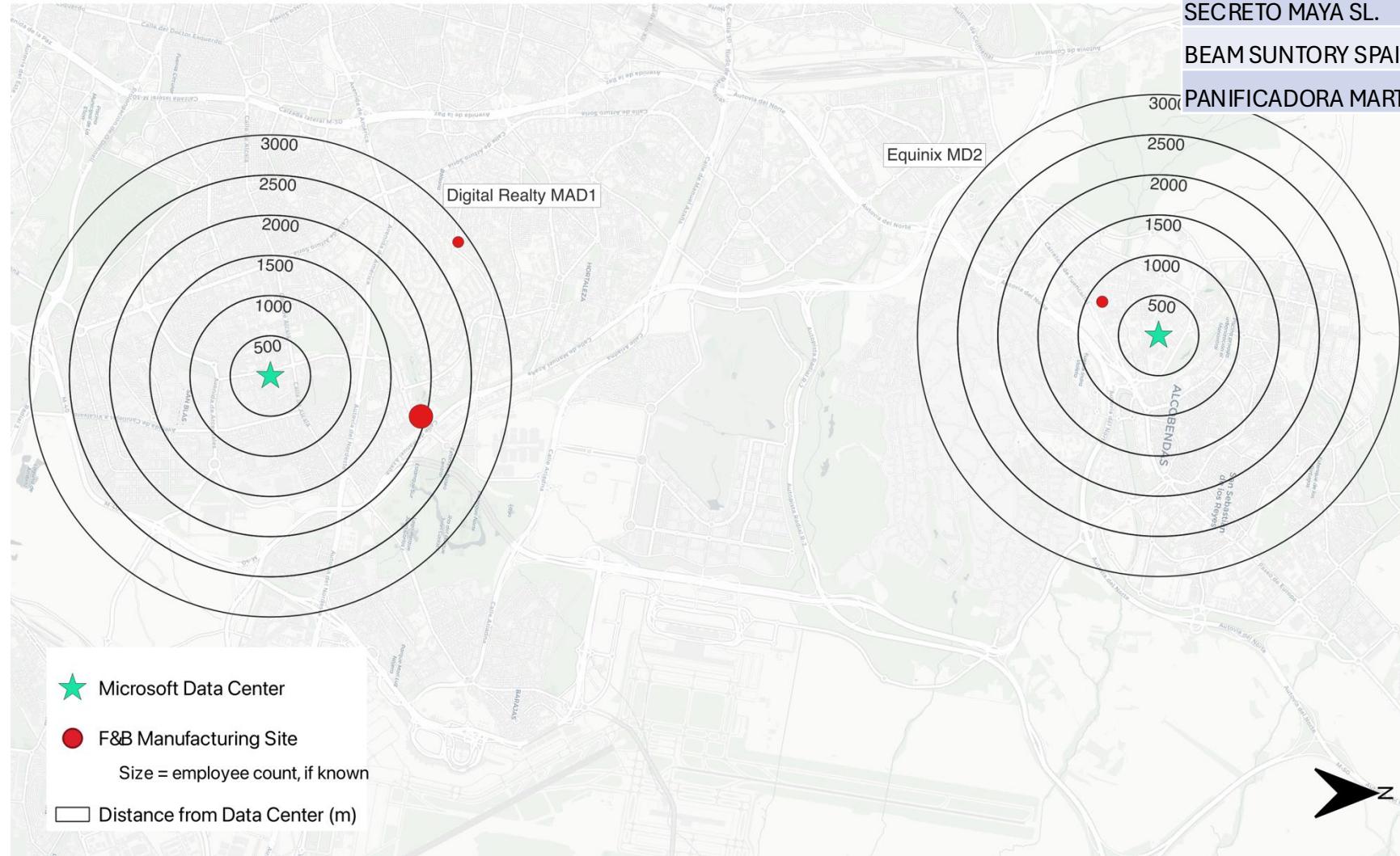
Berlin



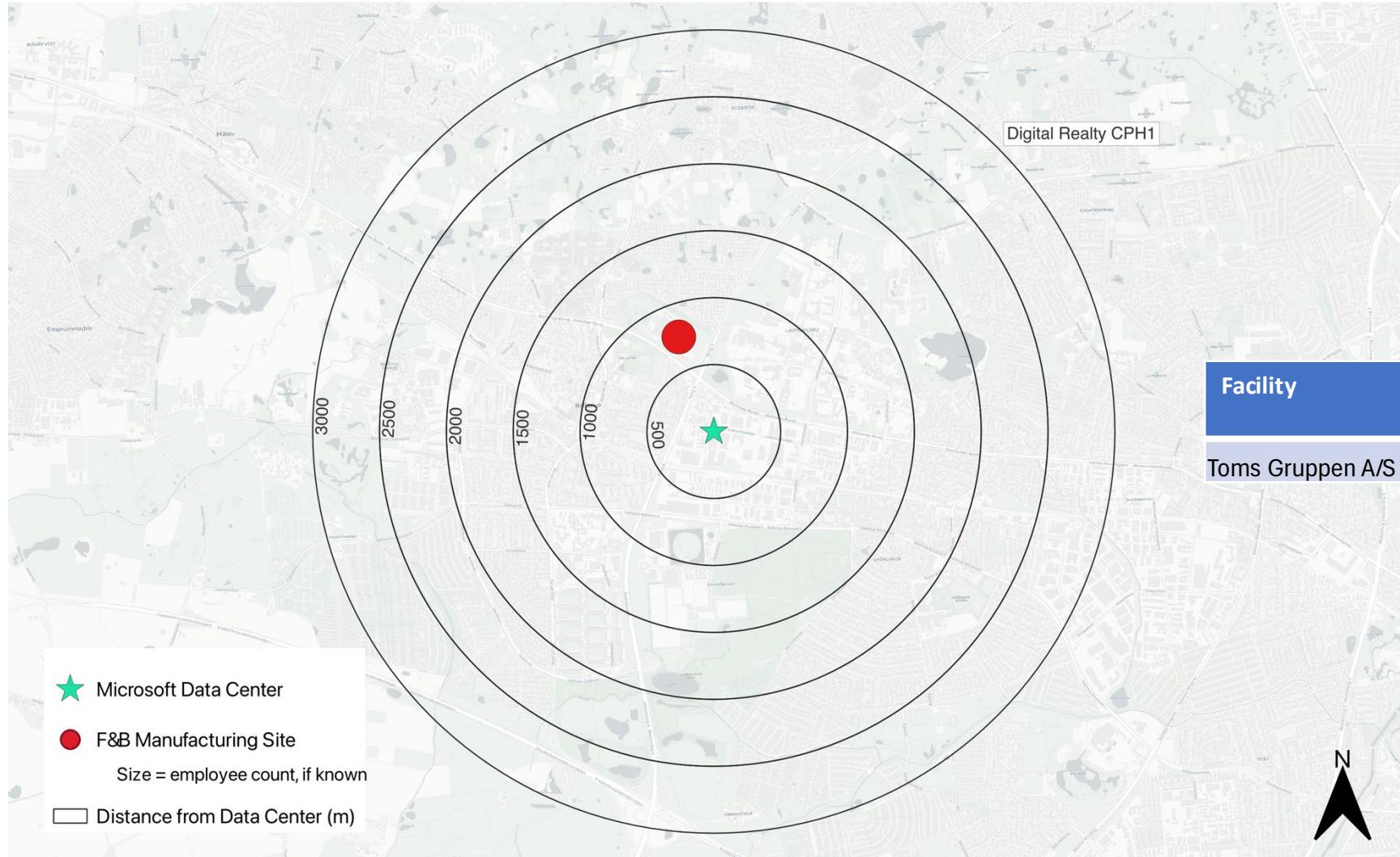
Munich



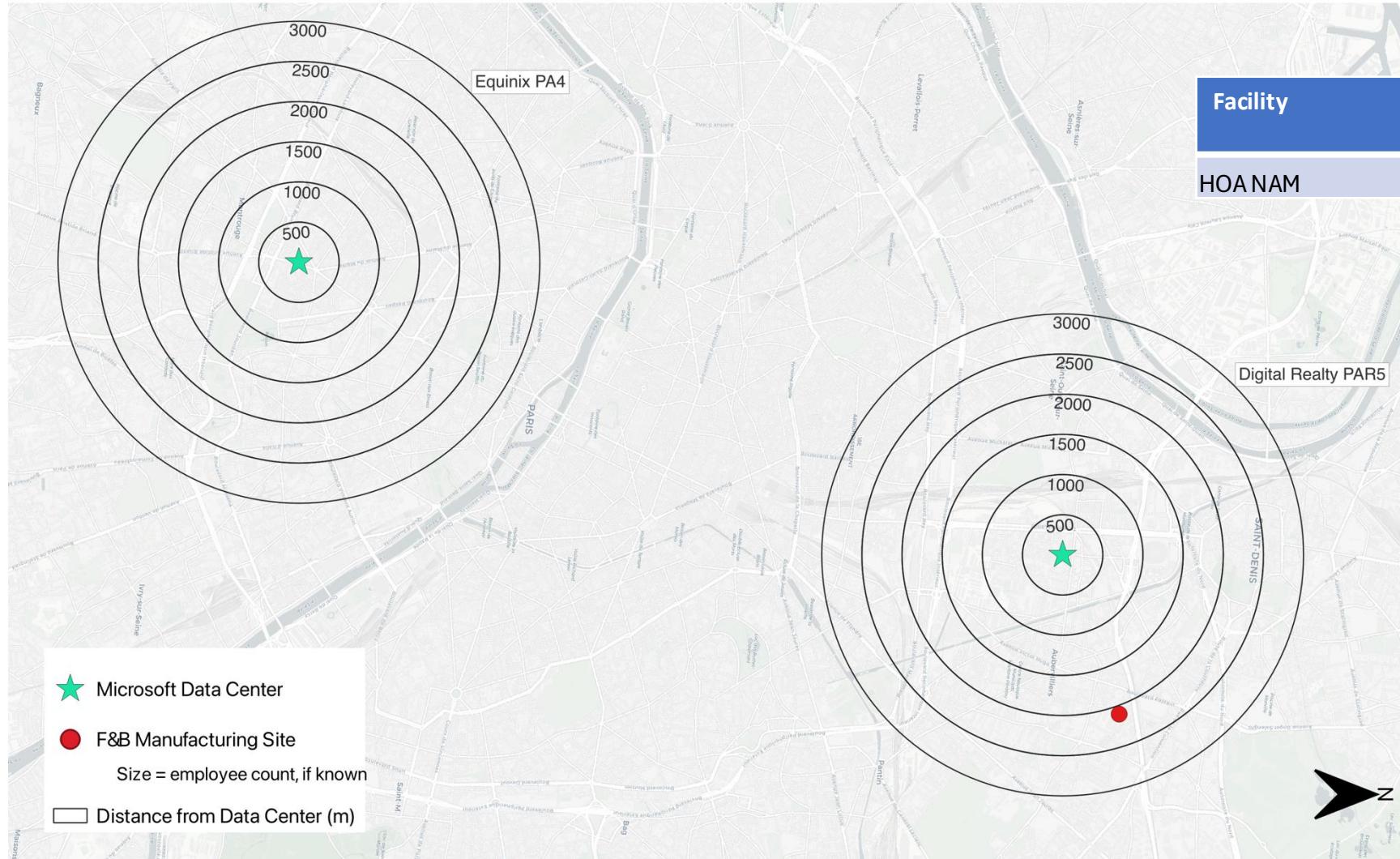
Madrid



Copenhagen



Paris





These Microsoft data centers were more than 3 km from the closest F&B manufacturing site.

Data center	Metropolitan area	Distance to nearest F&B site (m)
Equinix AM5	Amsterdam	3237
IRIDEOS Avalon	Milan	3622
Digital Realty AMS8	Amsterdam	3681
Interxion ZUR2	Zurich	4272
Equinix WA1	Warsaw	4321
Equinix GV2	Geneva	4434
Equinix PA4	Paris	4805
Equinix FR7	Frankfurt	5614
Data4 Campus MIL01	Milan	5682
Vantage Cardiff (CWL1) site 1	Newport	6086
Green Mountain SVG-Rennes\Ny	Stavanger	8921
Equinix SK1	Stockholm	9065
Equinix ZH5	Zurich	9403

All Microsoft data centers in Europe are less than ten kilometers from a F&B manufacturing site.

03

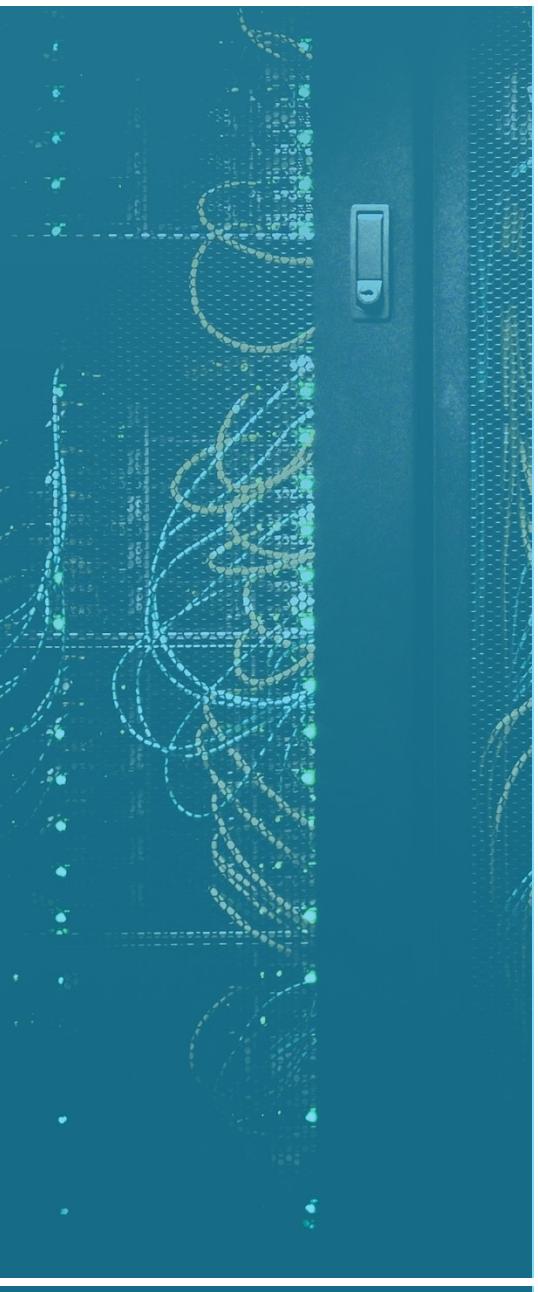
Data Sources & Methodology





Data Source: Data Centers

- Microsoft data center locations were sourced from TeleGeography's [Cloud Infrastructure Map](#), choosing all 26 addresses in Europe categorized as Microsoft Azure On-Ramps.
- Addresses were geocoded using Google Earth, imported to QGIS, and projected to the EPSG:3035 reference system to enable accurate distance calculations in Europe.



Data Sources: Food & Beverage Manufacturing Sites

- Locations of F&B manufacturing facilities were identified from two sources, one providing a more targeted set of datapoints and the other a broader set.
- The narrower European Pollutant Release and Transfer Register (E-PRTR) catalogs sites that report pollutant releases exceeding certain thresholds. To distinguish food and beverage sector manufacturing facilities, we filtered the E-PRTR database for facilities reporting under the Industrial Activity (IA) sector code 8.(b) – “Animal and vegetable products from the food and beverage sector”. We also filtered for facilities reporting under the Nomenclature of Economic Activities (NACE) Rev. 2 codes listed in the Appendix.



Data Sources: Food & Beverage Manufacturing Sites

- The broader dataset came from the Dun & Bradstreet Hoover (DnB) business intelligence database. We conducted a search for companies with sites which were: within two miles of Microsoft data centers in Europe; employed at least 25 people (to rule out small or errant sites); and were listed with the food and beverage manufacturing NACE and North American Industry Classification System (NAICS) codes shown in the Appendix as their primary activities.
- Sites from the E-PRTR and DnB were imported to QGIS, mapped using provided coordinates, and had duplicate points removed. They were projected to EPSG:3035 to enable accurate distance calculations.



Data Processing

- Locations from both sources that were within three kilometers of Microsoft data centers were extracted to separate files. From E-PRTR, 11 unique sites were found within that distance using IA codes, and 18 using NACE codes. From DnB, 105 unique sites were found using NACE codes and 60 using NAICS codes.
- Next, we checked each of these sites using satellite imagery, Google Maps, and web searches to remove those that were either not manufacturing facilities (office buildings, warehouses, retail, etc.) or belonged to sectors other than food and beverage. Four facilities were confirmed from the E-PRTR-IA code set and five from E-PRTR-NAICS set. 30 were confirmed from the DnB-NACE set and 11 from the DnB-NAICS set. Because several sites were listed under multiple codes or sources, this process yielded a total of 33 unique food and beverage manufacturing sites within 3 km of Microsoft data centers in Europe.

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Appendix



Appendix:

NACE Rev. 2 Codes for Food & Beverage Manufacturing

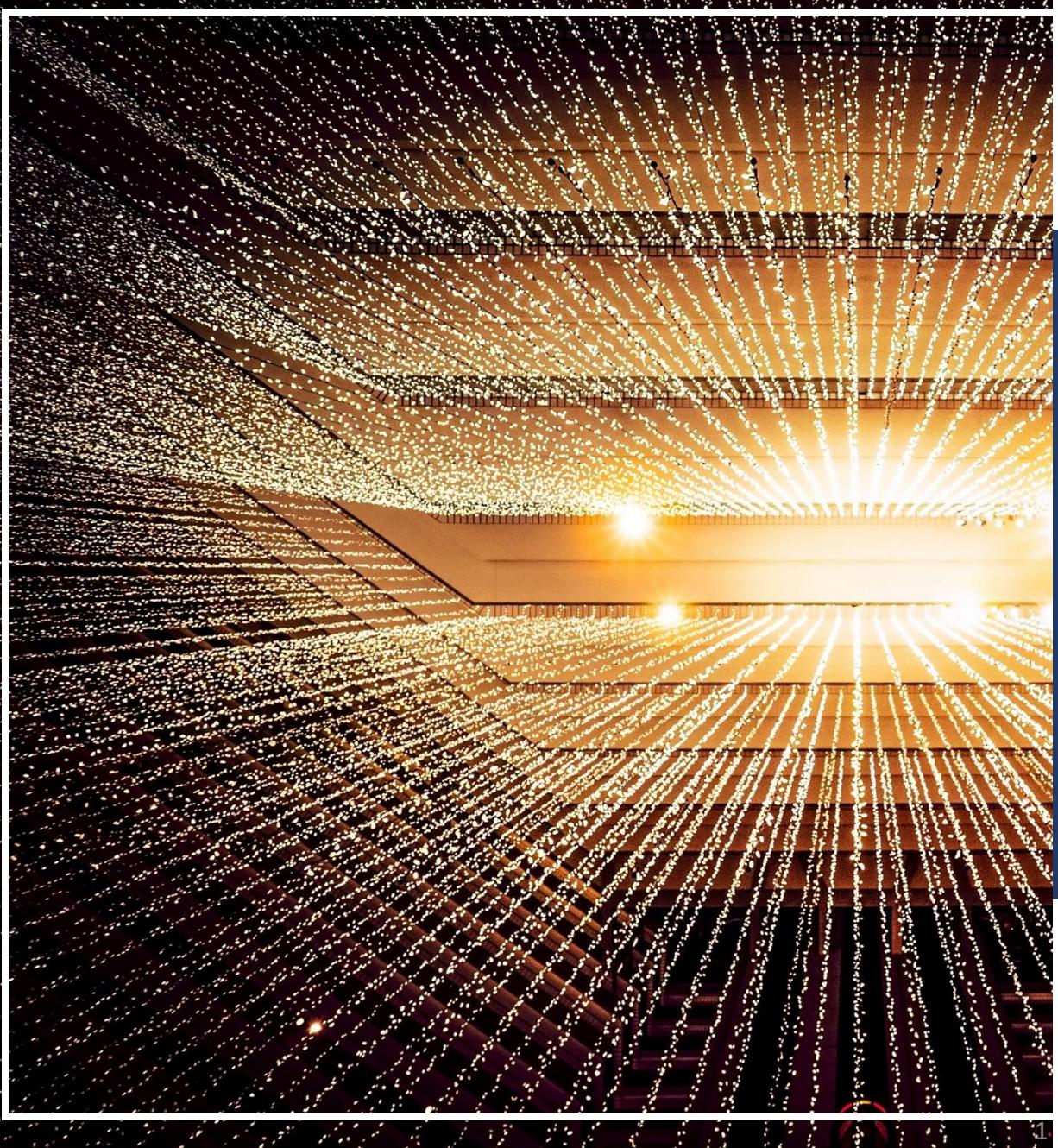
Code	Activity Name
10.11	Processing and preserving of meat
10.12	Processing and preserving of poultry meat
10.13	Production of meat and poultry meat products
10.20	Processing and preserving of fish, crustaceans and molluscs
10.31	Processing and preserving of potatoes
10.32	Manufacture of fruit and vegetable juice
10.39	Other processing and preserving of fruit and vegetables
10.41	Manufacture of oils and fats
10.42	Manufacture of margarine and similar edible fats
10.51	Operation of dairies and cheese making
10.52	Manufacture of ice cream
10.61	Manufacture of grain mill products
10.62	Manufacture of starches and starch products
10.71	Manufacture of bread; manufacture of fresh pastry goods and cakes
10.72	Manufacture of rusks and biscuits; manufacture of preserved pastry goods and cakes

Code	Activity Name
10.73	Manufacture of macaroni, noodles, couscous and similar farinaceous products
10.81	Manufacture of sugar
10.82	Manufacture of cocoa, chocolate and sugar confectionery
10.83	Processing of tea and coffee
10.84	Manufacture of condiments and seasonings
10.85	Manufacture of prepared meals and dishes
10.86	Manufacture of homogenised food preparations and dietetic food
10.89	Manufacture of other food products n.e.c.
10.91	Manufacture of prepared feeds for farm animals
10.92	Manufacture of prepared pet foods
11.01	Distilling, rectifying and blending of spirits
11.02	Manufacture of wine from grape
11.03	Manufacture of cider and other fruit wines
11.04	Manufacture of other non-distilled fermented beverages
11.05	Manufacture of beer
11.06	Manufacture of malt

Appendix:

NAICS Codes for Food & Beverage Manufacturing

Code	Activity Name
3111	Animal Food Manufacturing
311213	Malt Manufacturing
31122	Starch and Vegetable Fats and Oils Manufacturing
31123	Breakfast Cereal Manufacturing
3113	Sugar and Confectionery Product Manufacturing
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing
3115	Dairy Product Manufacturing
3116	Animal Slaughtering and Processing
3117	Seafood Product Preparation and Packaging
311813	Frozen Cakes, Pies, and Other Pastries Manufacturing
31182	Cookie, Cracker, and Pasta Manufacturing
31183	Tortilla Manufacturing
3119	Other Food Manufacturing
312	Beverage and Tobacco Product Manufacturing



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