Whose specialization is smarter?

A Comparison of Tesla's Silicon Valley and Jaguar Land Rover's West Midlands
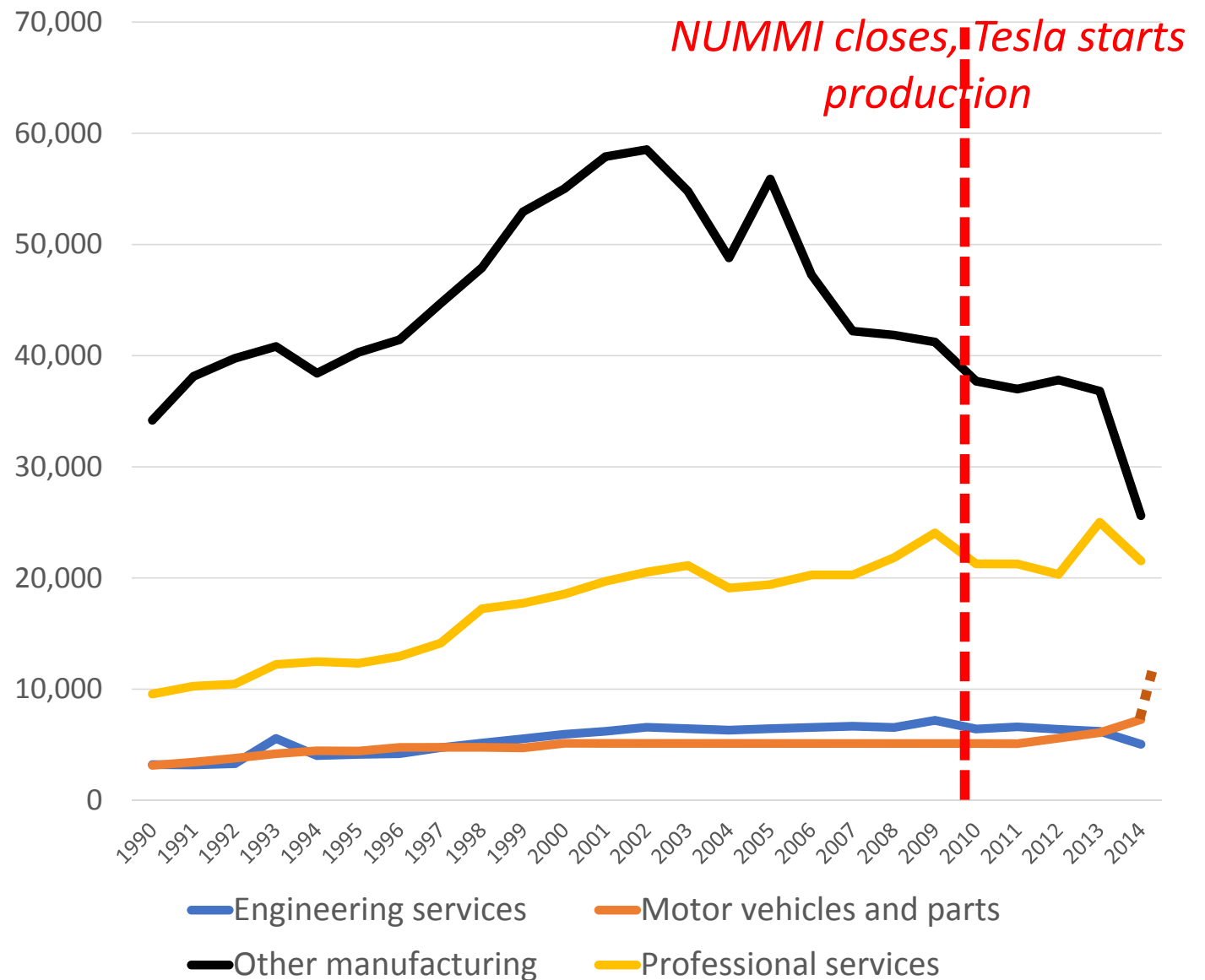
Place-Based Perspective:
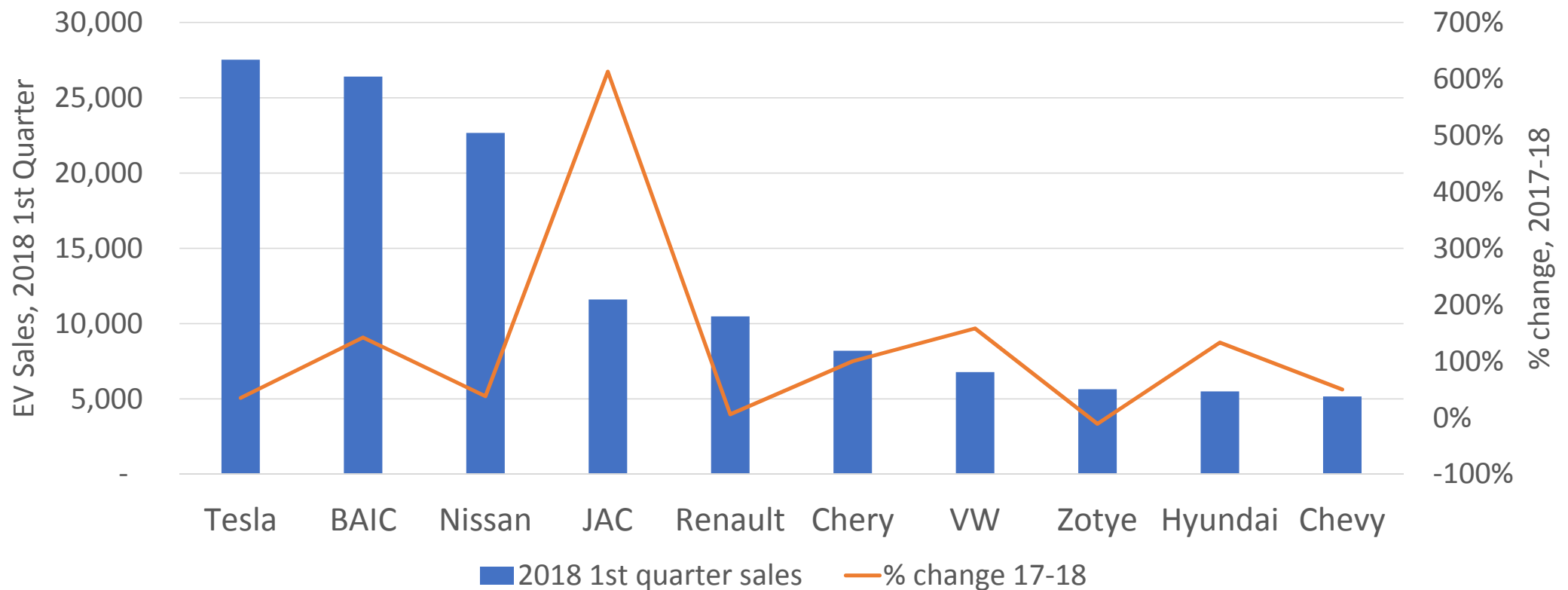# Fremont Innovation District

Toyota-GM plant, 1984-2010

The Tesla Miracle: Job Growth in Fremont, 1990-2014 (selected sectors)

- NUMMI – 4,700 jobs lost, plus ~2,000 jobs in suppliers
- Tesla – 9,500 jobs in 2018, plus ~1,000 suppliers

Chart: Job Growth in Fremont, 1990-2014. Y-axis ranges from 0 to 70,000. X-axis years 1990 through 2014. Red dashed line labeled "NUMMI closes, Tesla starts production" at 2010. Legend: Engineering services (blue), Motor vehicles and parts (orange), Other manufacturing (black), Professional services (yellow).

Global EV sales:
1.6 million in 2018, 35% of global new vehicle sales by 2040

Role of industrial policy in the US

- $3 billion in R&D for energy and the environment (#2 in OECD)

- Fleet procurement

- Individual state tax credits and incentives

- Electric car consumer rebates (200,000 per US manufacturer, $2,500-$7,500 each)

Who will be the next Tesla?

Insight: could Fisker become the next Tesla?

Henrik Fisker wants to make "non-conformist and extreme" EVs. He laid out his vision for the future

EMotion: 400-mile-range EV co

Dyson could become next Tesla with its electric car, says expert

Filed patents show the British engineering firm i state batteries that could stretch electric car's ra of miles and increase safety

Maserati to take on 'Porsche and Tesla' with Alfieri, new SUV and four EVs

Italian brand pledges to attack market with variety of new models, including battery electric cars

Chinese electric car start-up Nio: We welcome competition from Tesla and others

How BMW plans to deliver the next Tesla killers

Tesla-inspired Chinese EV startup launches all-electric SUV using open-source patents

Fred Lambert - Oct. 24th 2017 11:11 am ET @FredericLambert

Emotion Analysis

Sometimes the three classes of sentiment (positive, negative and neutral) are not sufficient to understand the nuances regarding the underlying tone of a sentence. Our Emotion Analysis classifier is trained on our proprietary dataset and tells whether the underlying emotion behind a message is: Happy, Sad, Angry, Fearful, Excited, Bored or Sarcastic.
***Emotion API works in fourteen different languages mentioned** here*.

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Select A Language   English   ▼

This Electric Vehicle Startup Could Become the Next Tesla. These days, if you attend a tech convention or conference, chances are you'll se

Analyse

Happy	Angry	Excited	Sarcasm	Sad	Fear	Bored
10.81 %	10.33 %	14.87 %	25.89 %	11.72 %	20.69 %	5.69 %

Select A Language English ▼

Insight: could Fisker become the next Tesla? Henrik Fisker wants to make "non-conformist and extreme" EVs

Analyse

Happy
9.71 %

Angry
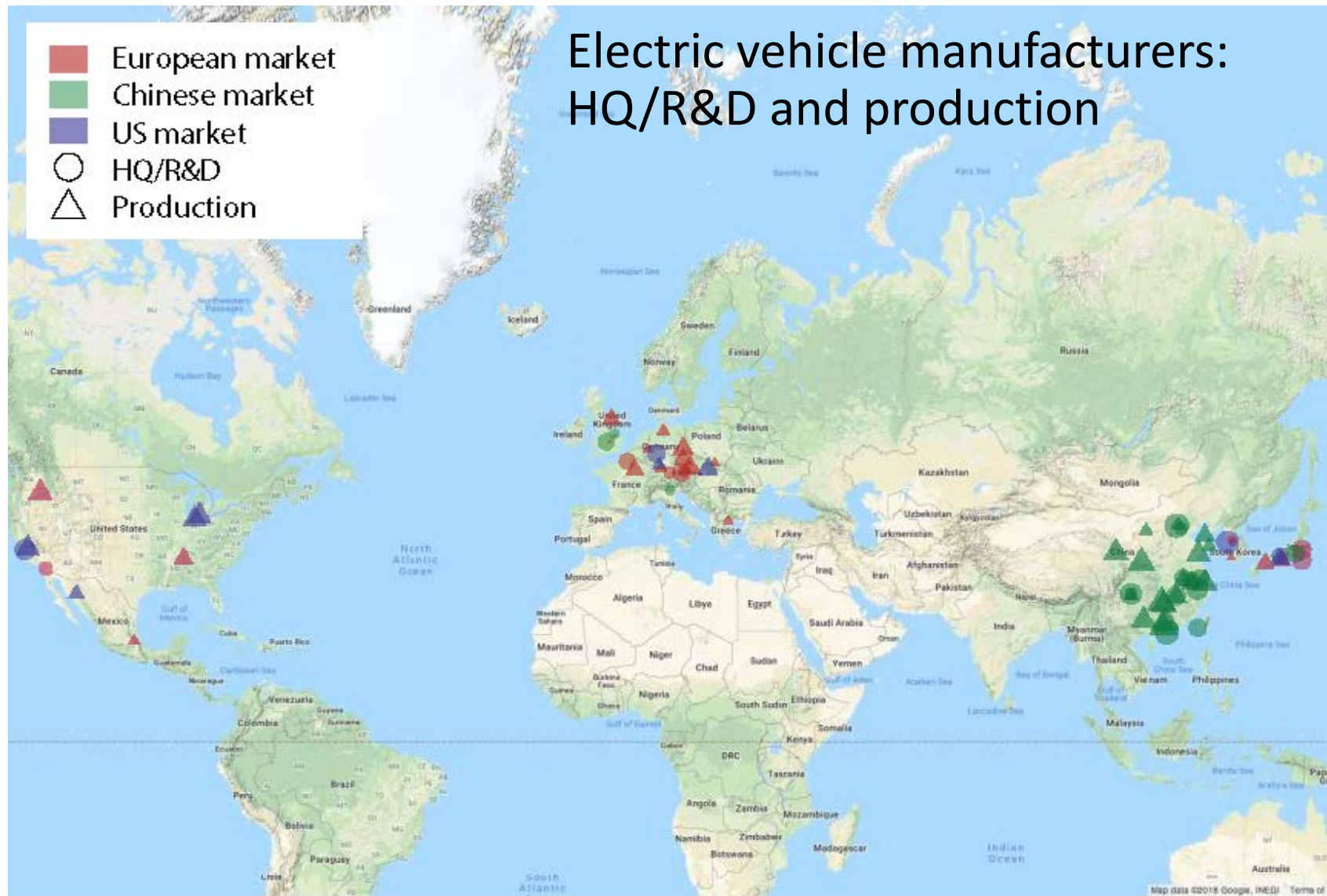8.13 %

Excited
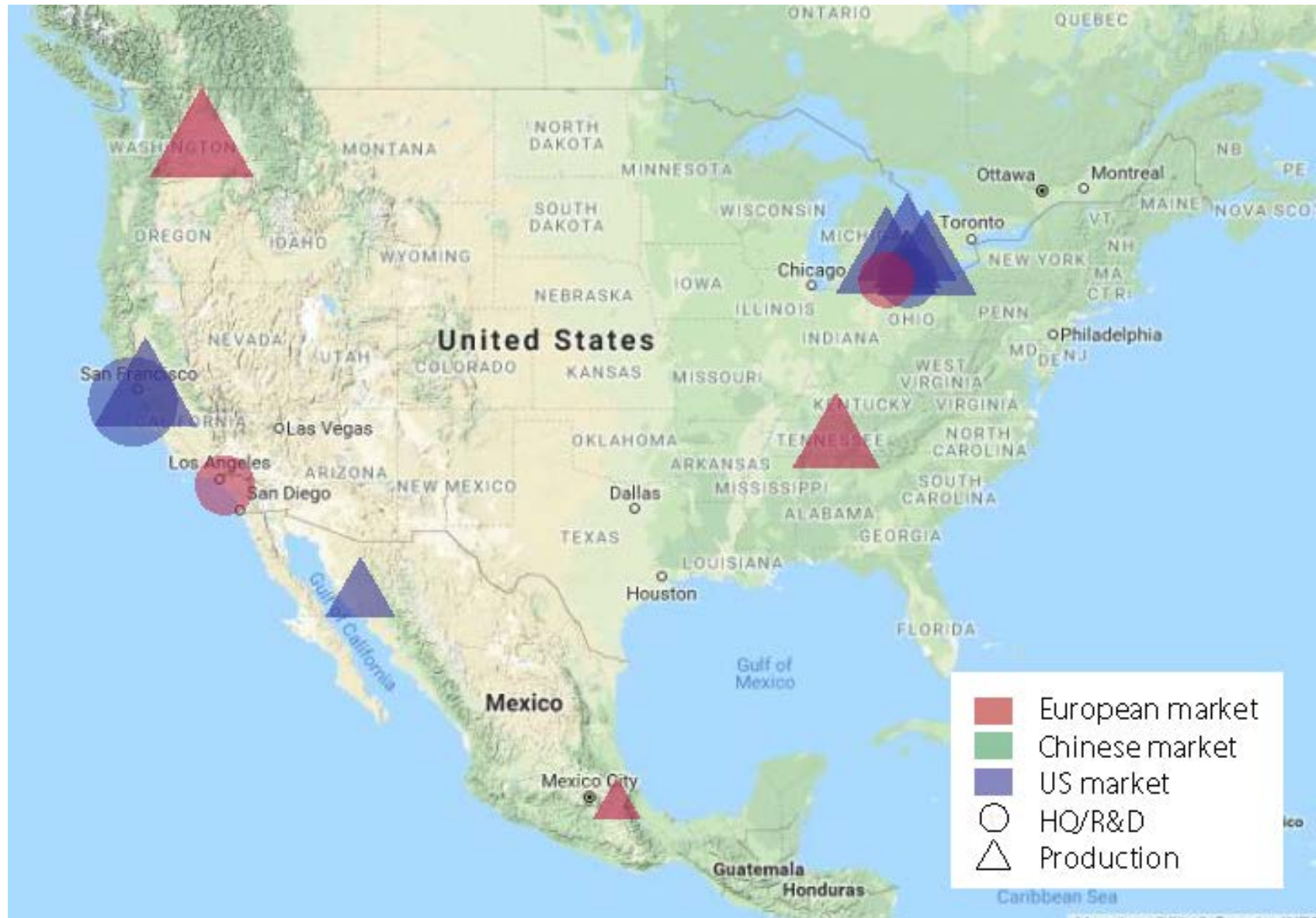18.80 %

Sarcasm
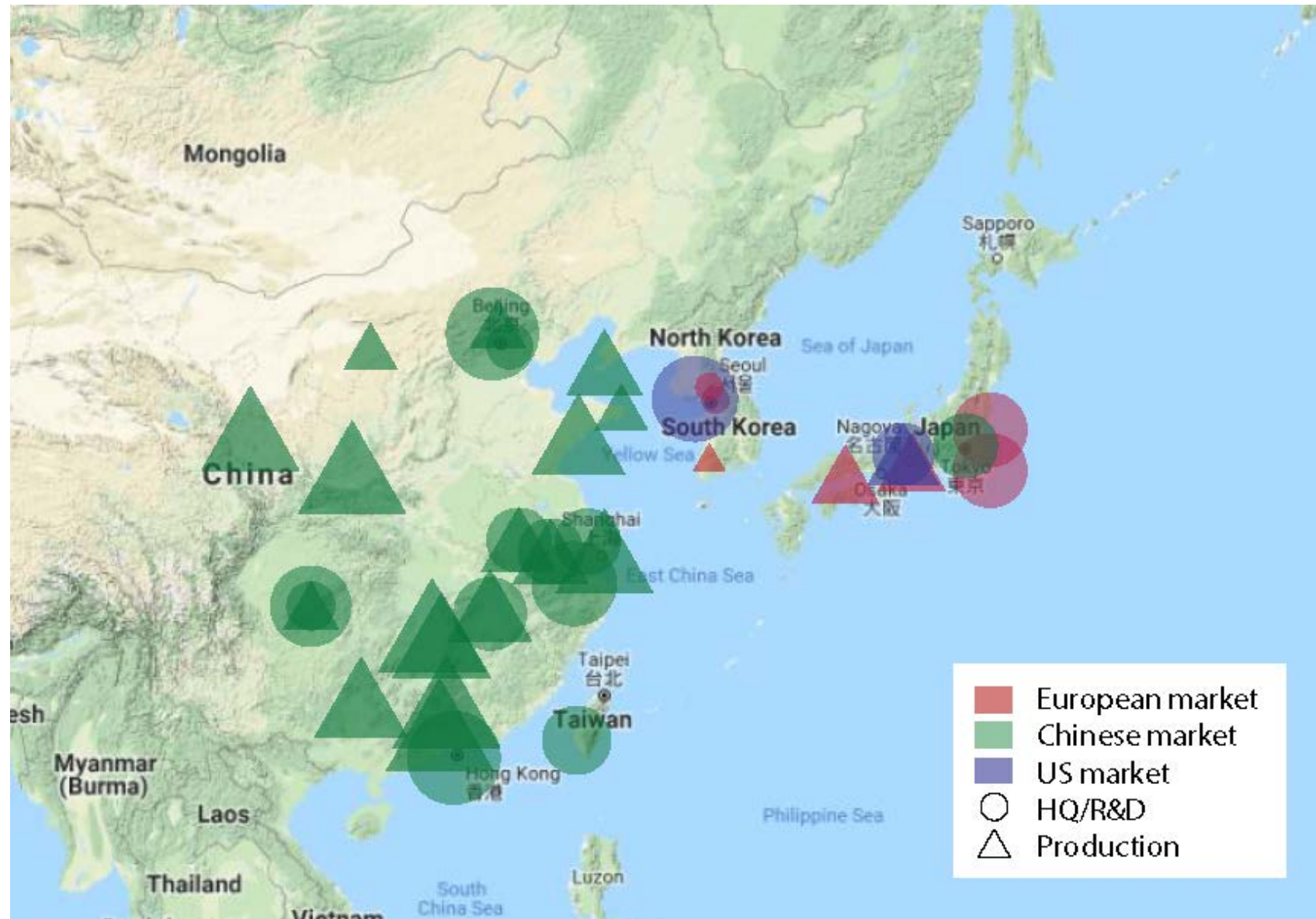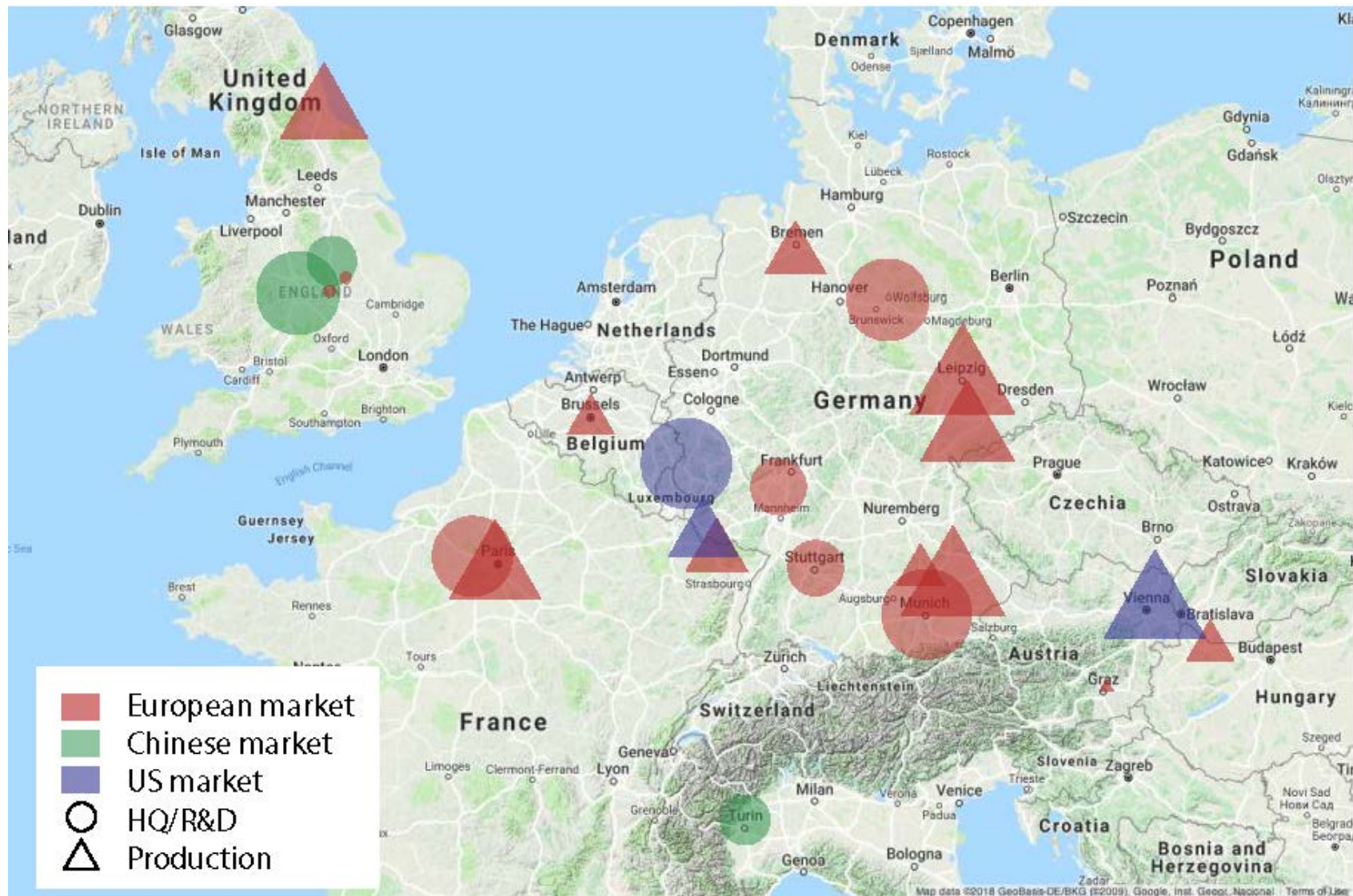21.30 %

Sad
9.49 %

Fear
26.94 %

Bored
5.62 %

Electric vehicle manufacturers: HQ/R&D and production

Legend:
- European market
- Chinese market
- US market
- ○ HQ/R&D
- △ Production

🟥	European market
🟩	Chinese market
🟪	US market
◯	HQ/R&D
△	Production

🟥	European market
🟩	Chinese market
🟦	US market
◯	HQ/R&D
△	Production

🟥	European market
🟩	Chinese market
🟪	US market
◯	HQ/R&D
△	Production

Current manufacturer
Emerging manufacturer

The open questions

- Innovation: radical vs. incremental?
- Variety: related vs. unrelated?
- Skills: traditional vs. high-tech?

-- Amison & Bailey (2013)
-- Christopherson (2009)
-- Boschma (2007-present)
-- Martin & Sunley (2006)

| Field of Activity	Skilled	Semi-Skilled	Un-skilled	Representative Job Profiles
Scientific research of batteries	X			Chemists, materials scientists
Design and development of automobile technology	X	x		Engineers, engineering technicians, software developers, industrial designer
Manufacturing	X	x		Assemblers, machinists, production managers
Vehicle maintenance		x	x	Automotive service technicians, mechanics
Infrastructure development	X	x		Urban and regional planners, power-line installers/repairers, electricians
Sales and support		x	x	Retail salespersons, customer service representatives

Source: U.S. Bureau of Labor Statistics. (2011, September). Careers in Electric Vehicles. Hamilton, H. Retrieved from http://www.bls.gov/green/electric_vehicles/electric_vehicles.pdf

Source: IEDC, 2013.

Job openings at Tesla, July 2018 (excluding sales and service)
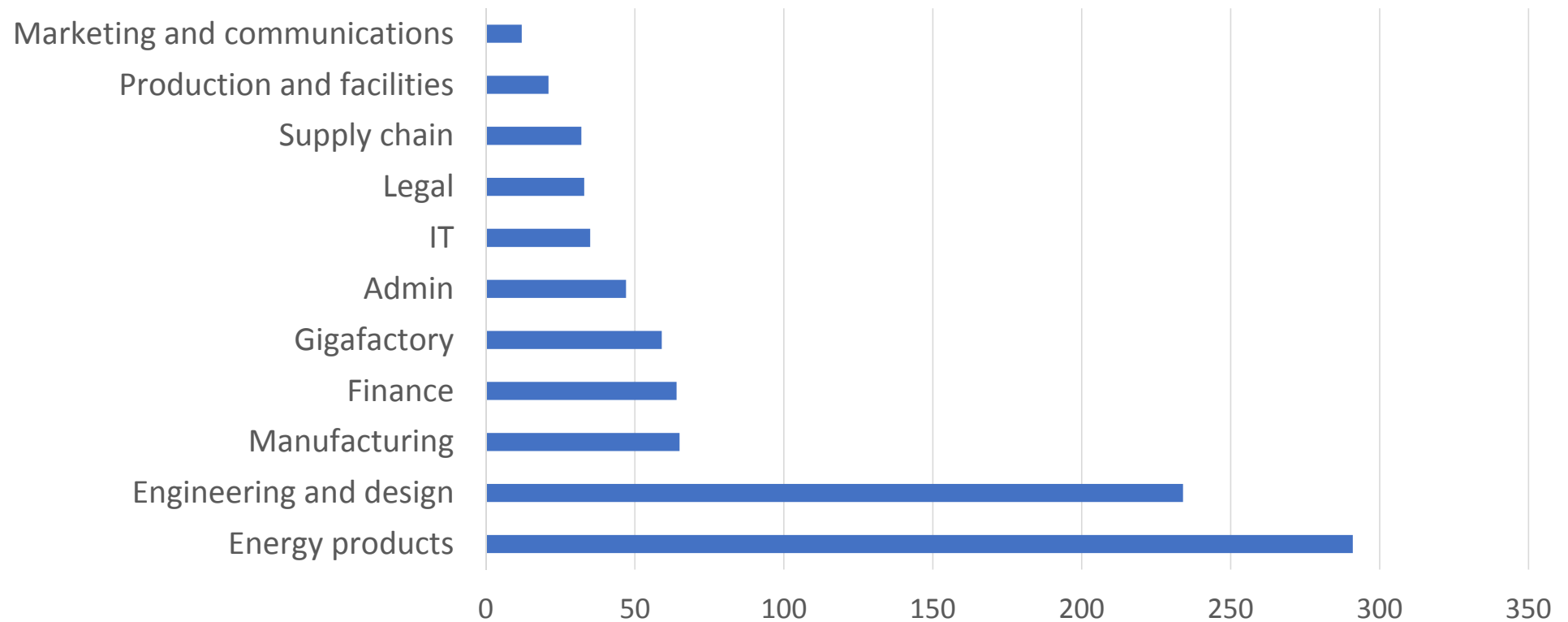
Job openings at Tesla, July 2018 (locations with >= 10 openings)
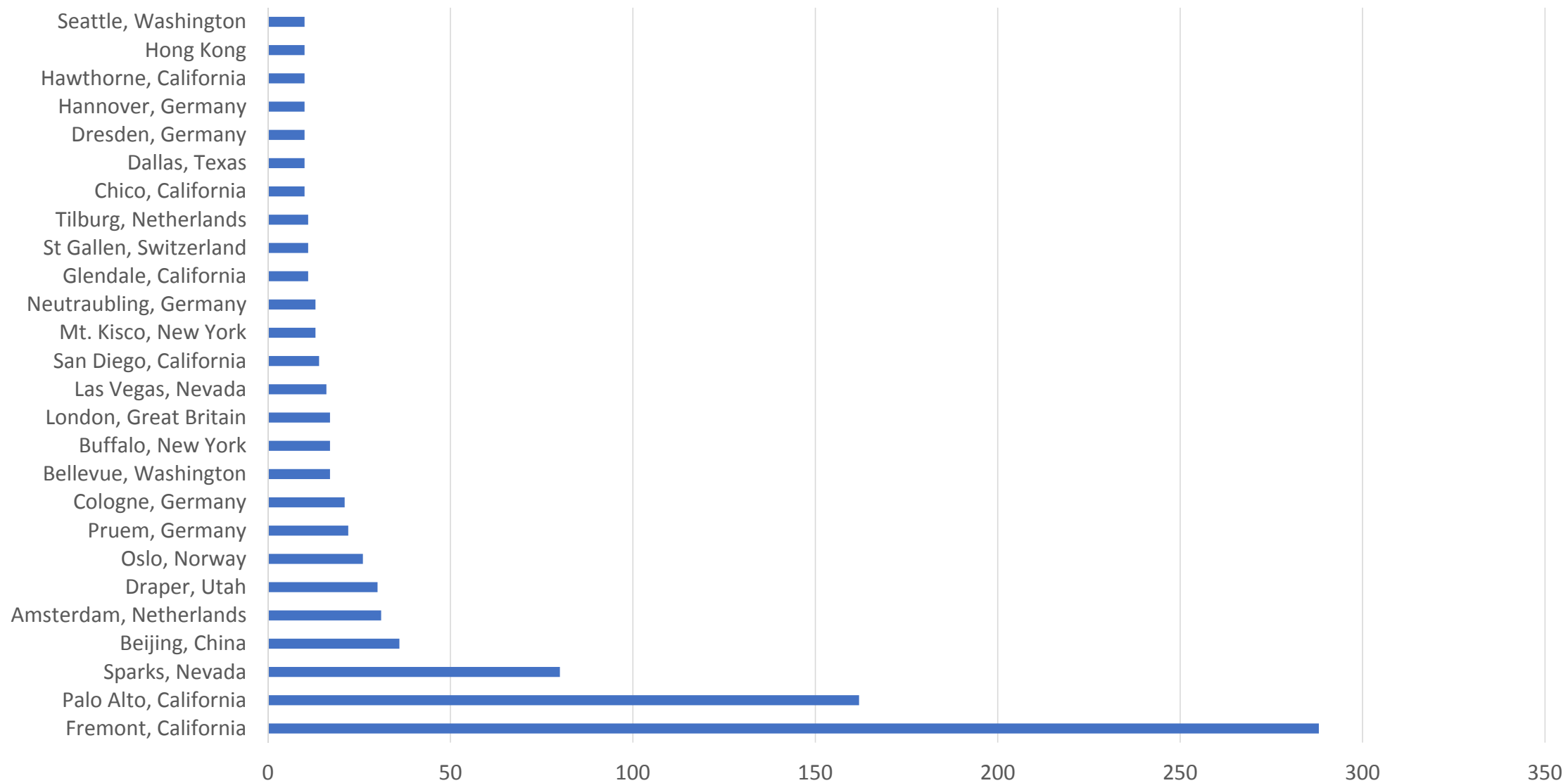
Jaguar Land Rover (I-PACE)

Tesla

Coventry / West Midlands, UK
c. 2008
~40,000 employees in UK

Fremont / Bay Area, US
c. 2009
~40,000 employees globally, 12,000 in SF Bay Area

Comparing two bottom-up place-based bets:
Lessons for industrial policy

Tech-related industry

Industry	Location Quotient
West Midlands	
Information and communication	**0.6111**
Professional, scientific and technical activities	**0.7519**
Bay Area	
Information	**1.9114**
Professional, scientific, and management, and administrative and waste	**1.6841**

Manufacturing industry

Industry	Location Quotient
West Midlands	
Manufacturing	**1.1390**
Bay Area	
Manufacturing	**1.0256**

Tech Occupations

Occupational Classification	Location Quotient
West Midlands	
Science, research, engineering and technology professionals	**0.8659**
Science, engineering, and technology associate professionals	**0.9588**
Bay Area	
Computer and mathematical occupations	**2.6169**

Manufacturing Occupations

Occupational Classification	Location Quotient
West Midlands	
Skilled metal, electrical and electronic trades	**1.2399**
Process, plant and machine operatives	**1.4171**
Bay Area	
Production occupations	**0.6559**

	Jaguar Land Rover	Tesla Motors
Regional industrial structure	Specialized	Diversified specialization
Automotive skill base	Reutilizes deep local skill base	Rehires just 25% of Toyota workers
High-tech skill base	Skill shortages	Restructures production to rely on Silicon Valley talent
Labor management model	Traditional, plus global division of labor	Labor exploitation and robots
Institutions	Support specialization and co-evolve with JLR	Support diversity, multiple players
Entrepreneurial ecosystem	Strengths in R&D and universities	Ambitious entrepreneurs fueling start-ups and scale-ups

	Jaguar Land Rover	Tesla Motors
Location strategy	Global: West Midlands concentration plus global production network; consolidating EV production in UK (Bailey 2018)	Regional concentration (Silicon Valley plus Nevada), growing globally
Place strategy	Suburban industrial parks	Suburban industrial parks but connected closely to vibrant mixed-use center
Firm branding strategy	Coventry history in automotive	Silicon Valley and tech future
Industrial policy	National strategy supportive, but lacking regional planning institutions	National/state EV policy, plus strong private sector support and regional planning infrastructure
PROGNOSIS	Labor shortages and production/supply chain issues with Brexit	Unable to mass produce

Learning from the "actually existing" specialization

- Multiple and contingent pathways

- Both will survive, whether in West Midlands and Silicon Valley or (more likely) elsewhere

- Cautions for smart specialization strategy

- Victory for industrial policy?