

Li-ion Production in Europe and Varkaus

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Private thinking 2024-05-17

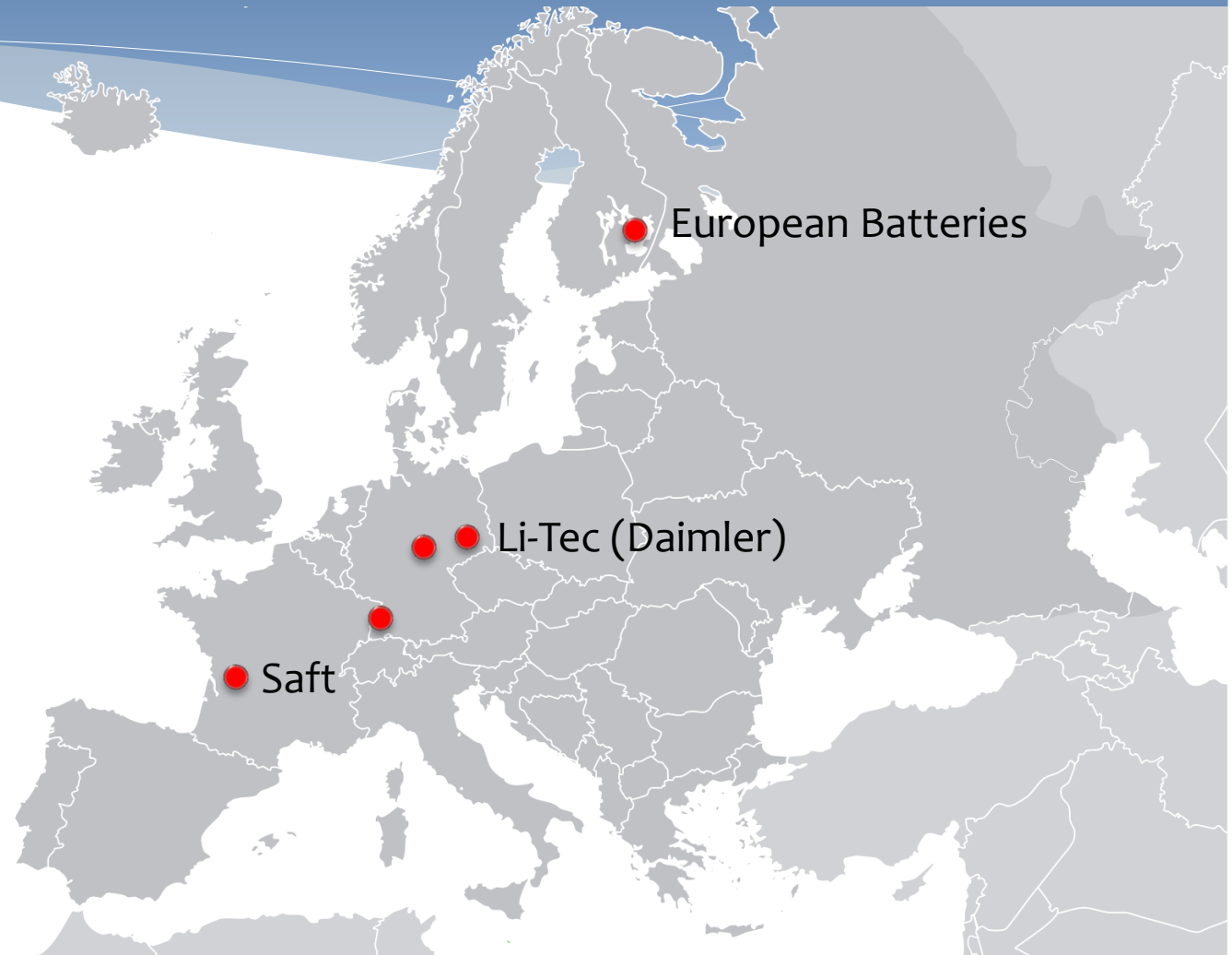
Li-ion production in Europe 1991

- * Large lead-acid battery industry
- * Battery hype just ended
- * "Day after" feeling
- * Fuel cell hype started
- * Sony introduced Li-ion battery
 - * in Japan



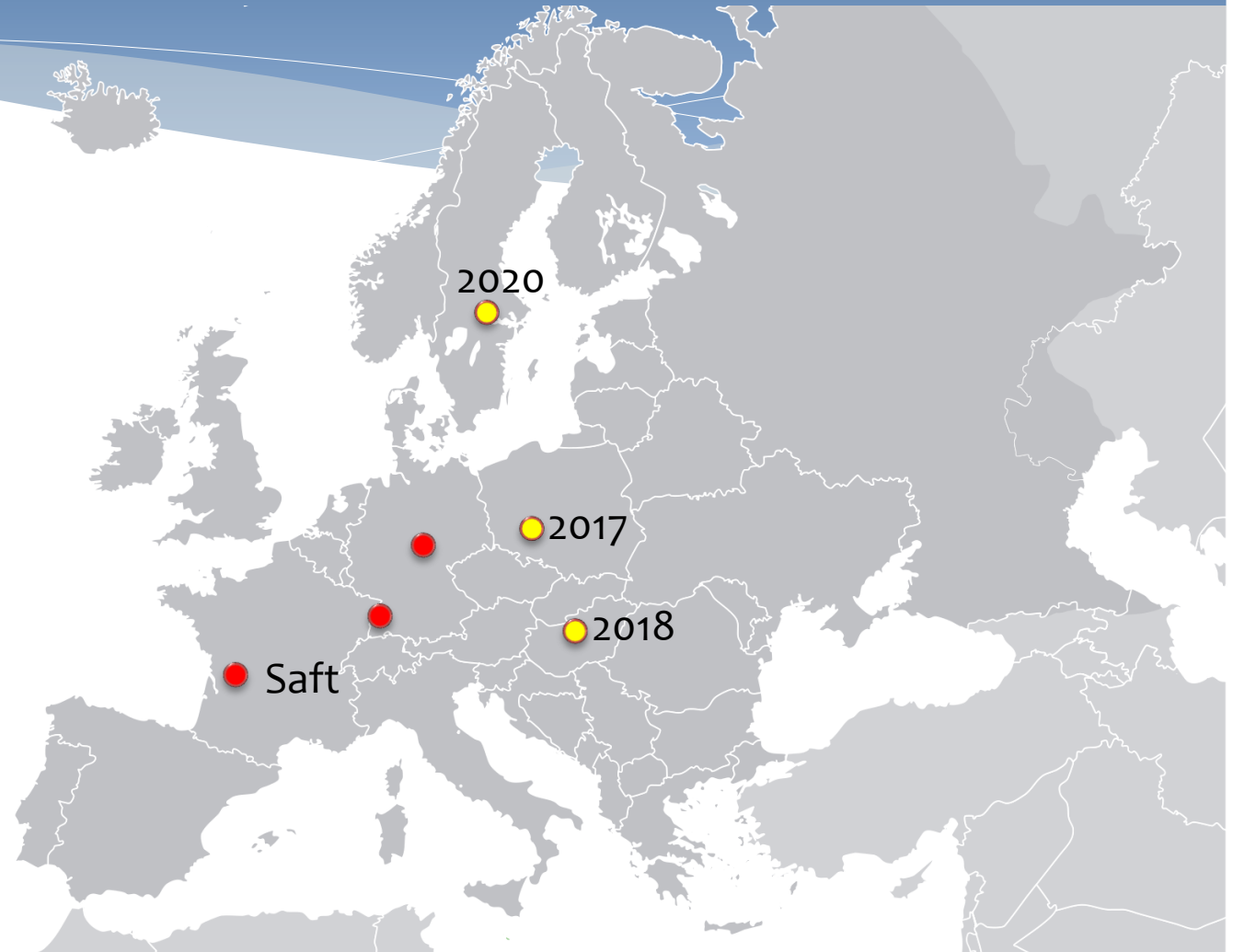
Li-ion production in Europe 2011

- * Largest: Li-Tec in Germany
- * Second: European Batteries
- * Market share:
 - * Japan 1/3
 - * Korea 1/3
 - * China 1/3
 - * Europe & Usa



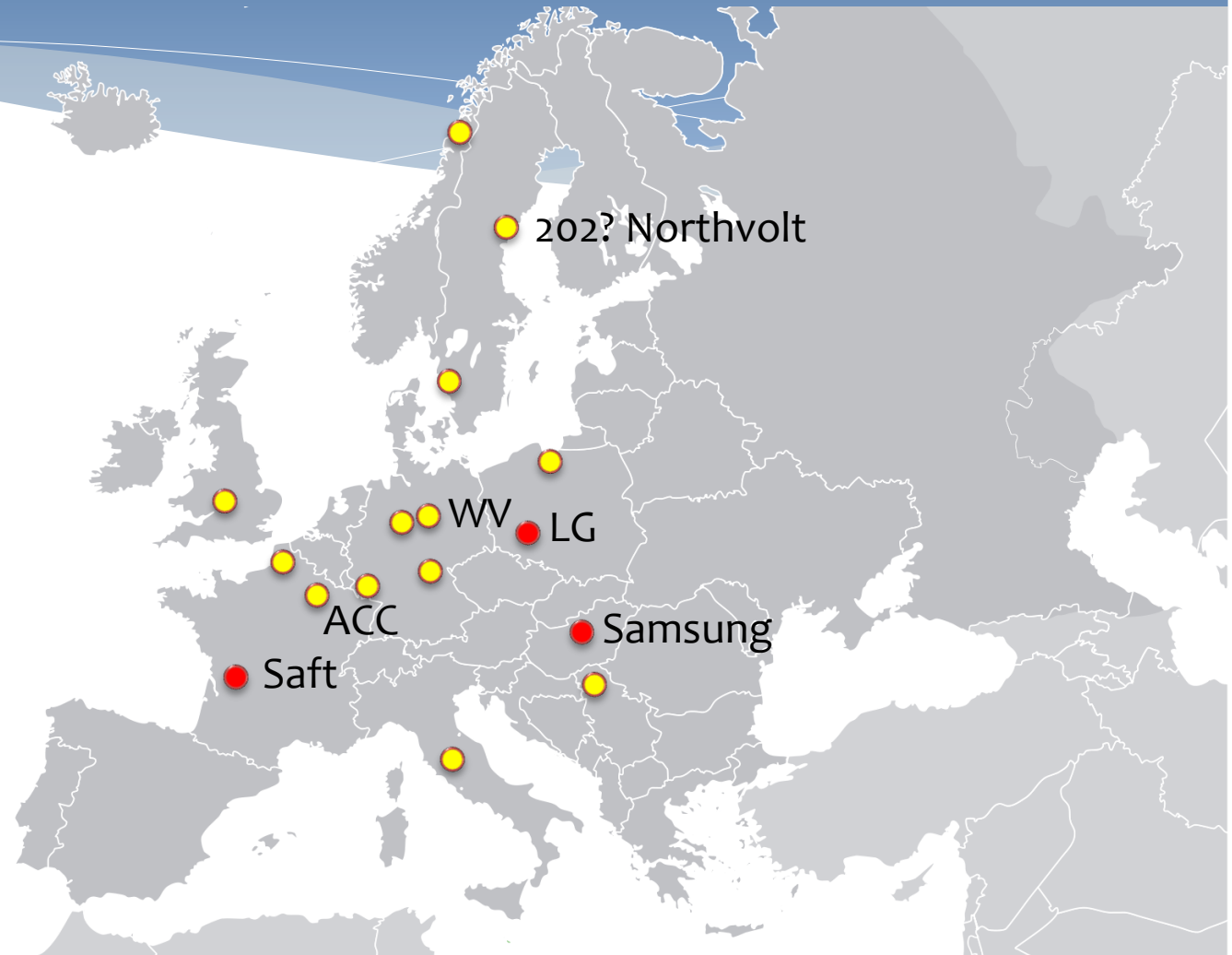
Li-ion production in Europe 2017

- * EAS & Leclanché in Germany
- * SAFT in France
- * LG in Poland 2017
- * Samsung in Hungary 2018
- * Northvolt in Sweden?
- * Tesla Gigafactory Germany?



Li-ion production in Europe 2024

- * SAFT in France still alive
- * Northvolt still starting
- * Volkswagen very active
- * ACC in France & Germany
- * Many hype projects
 - * Britishvolt
 - * ...



Gigafactory

- * To compete with LG, Samsung & Panasonic, very large scale is needed
- * Investment 1000-5000 M€
 - * Daimler, Fiat, Peugeot & Citroen together = ACC
- * Is there enough production know-how?
 - * Volkswagen pilot factory helps
- * Step-by-step approach, increasing the production capacity
- * Massive losses at the beginning!

Do we need cells made in Europe?

- * Daimler did not care 2015
- * Car drivers do not care
- * LG & Samsung can deliver

- * European economy does care
- * Engine manufacturing workers do care
- * Military, police and aerospace industry may care?
- * Is "made in EU" a unique selling point?

Li-ion production in Varkaus 2024

- * 2009-13 European Batteries
 - * No.2 in Europe, mass production
- * 2015-19 ...
- * 2023- Skeleton Technologies
 - * Typical pilot plant
 - * R&D for Li-ion batteries

