

A photograph of an indoor farming facility. In the foreground, there are rows of red-leafed lettuce growing in black trays. In the background, there are rows of green-leafed lettuce. The ceiling is made of a grid of black panels with many small, circular LED lights that are turned on, creating a bright, even illumination. The structure appears to be a large, modern building with a high ceiling and a series of parallel rows of growing trays.

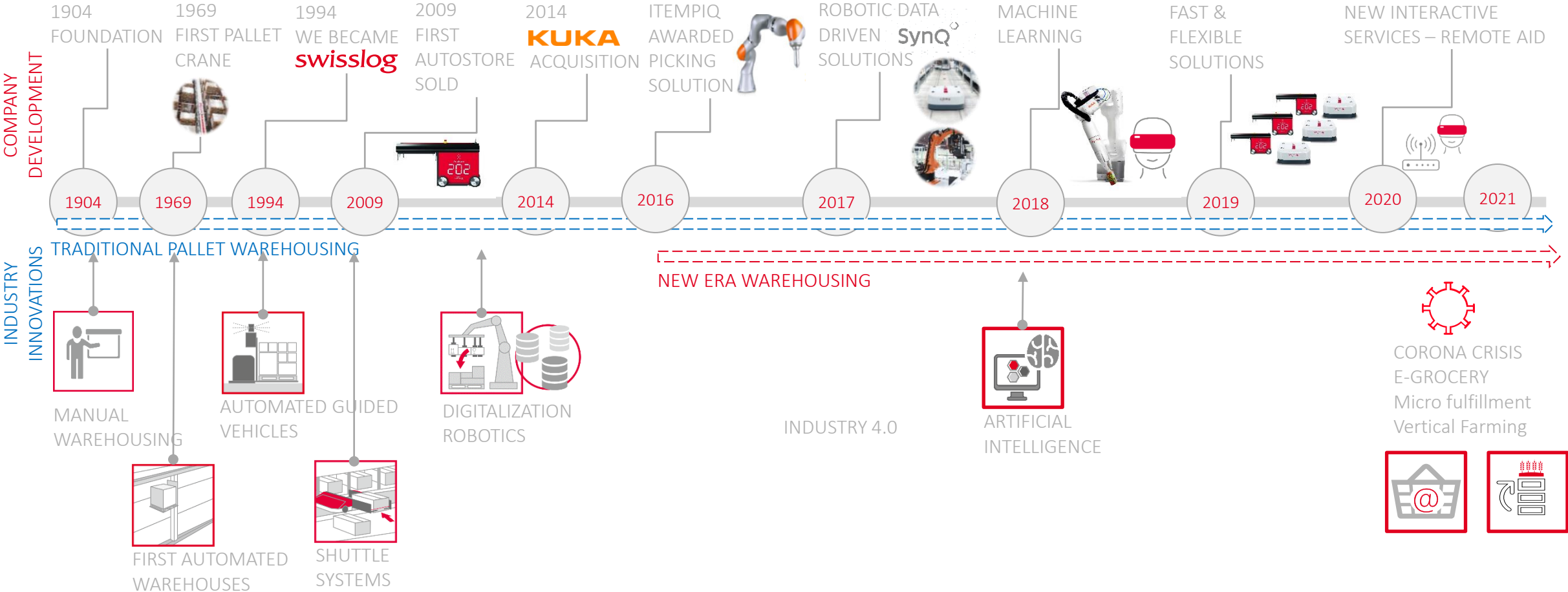
AUTOMATED INDOOR FARMING THEMENREISE 2021

Timo Landener

21.04.2021

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Snapshot from current global challenges



- **Growing global population – more mouths to feed.** The UN predicts **70%** more demand in food production.



- **Consumers are becoming more aware about products they buy.** Investigating on provenance of products, meatless alternatives, organic food, etc.



- **Desertification.** The United Nations estimates that desertification affects 70% of arid lands, amounting to about **30%** of the world's cultivable land.



- **Food supply chain is vulnerable.** From singular events like Suez Canal obstruction and pandemic may have left over **250 million people** with acute food shortages in 2020 (even **82%** more than in 2019).



- **Soil degradation.** Recent cultivation methods caused yield reductions of 25–50% in some regions of Europe and North America and between 40 and **90%** in West African countries.

What is Indoor (Vertical) Farming?

Controlled Environment Agriculture (CEA)



TRADITIONAL FARM
WATER USAGE: 250 L



MORE LAND, LESS YIELD



50% PLANTS TO BE HARVESTED



LESS FOOD MILES



LESS FERTILIZERS



VERTICAL FARM
WATER USAGE: 1 L



NO LAND, MORE YIELD



90% PLANTS WILL BE HARVESTED



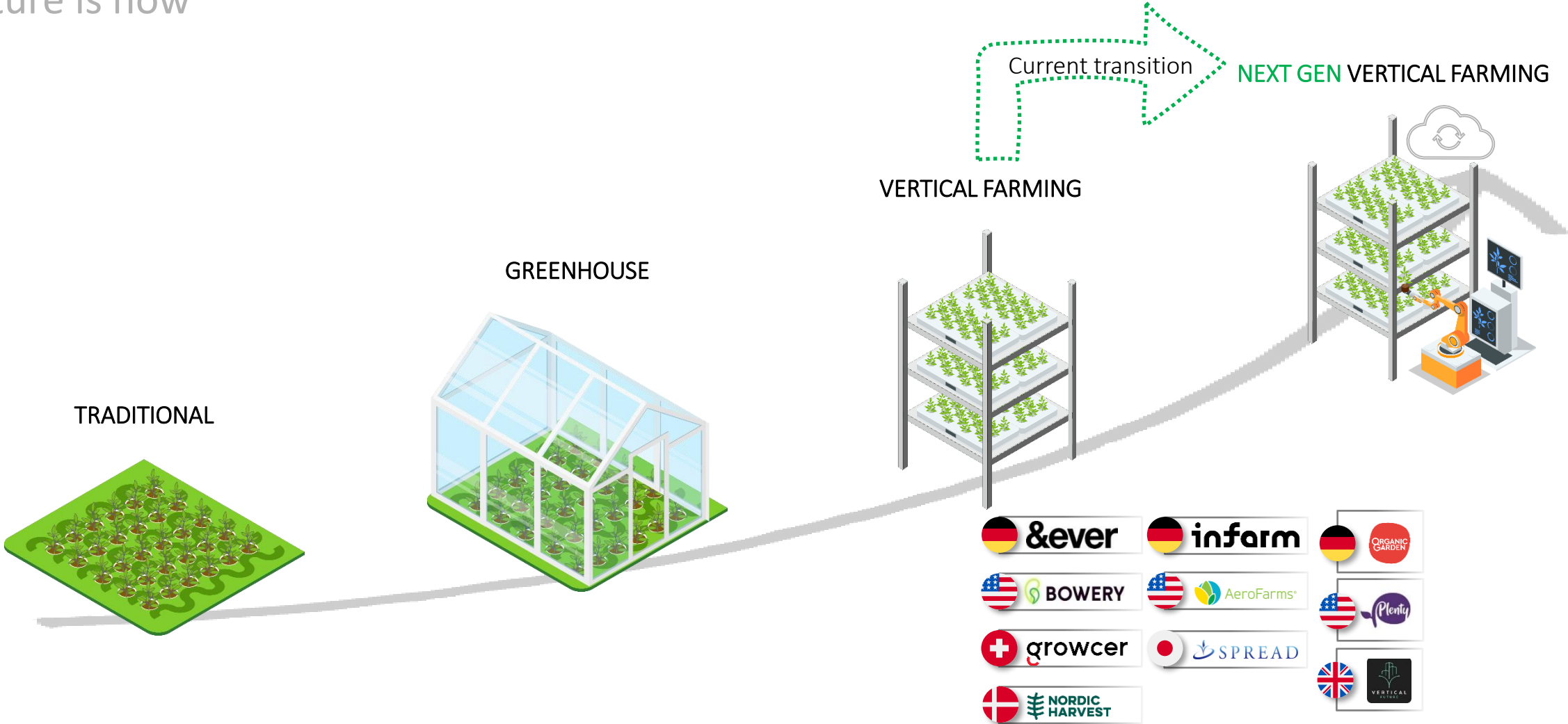
MORE NUTRITIOUS



BUT USES MORE ENERGY



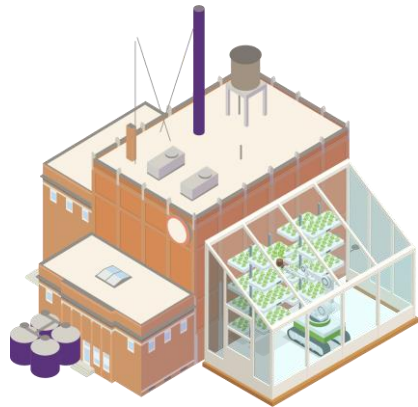
(R)Evolution of the farming
Future is now



Indoor Farming and the Supply Chain

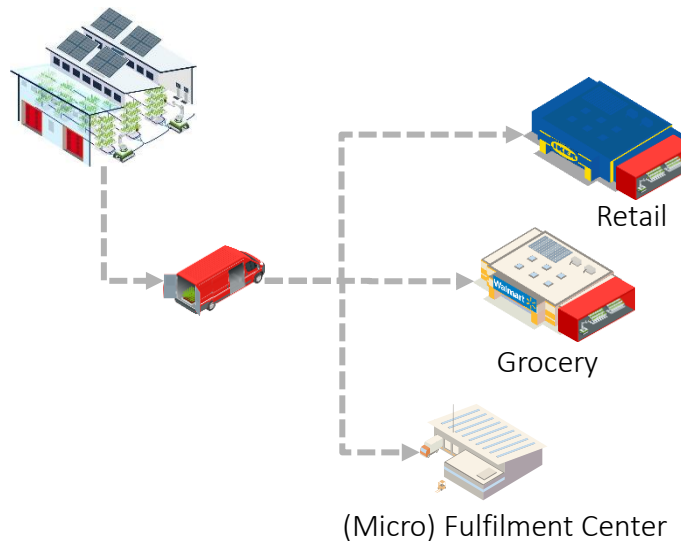
From Farming to Production, Distribution and Consumption

Farm / produce your own **INGREDIENTS**!



- Herbs for spice manufacturing
- Medicinal herbs for medicament manufacturing

Produce in the rural area (locally) and bring it to the urban area without **HARVESTING**!



Farm / produce your own **HERBS** for your recipes!



- Special herbs for salads (such as mustard) in the restaurant
- Herbs stored next to an “culinary mile”



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