Implementing sustainable Internet of Things in horticulture

## Design a strategy to innovate the horticultural sector durably.

Why?

The Dutch agricultural sector needed to increase its production over the years. Although these changes were fruitful, it is currently provoking environmental concerns. This is causing **pressure for growers to be more sustainable** in the last few years.

Therefore, growers are **embracing technology to produce more efficiently and sustainably**. Growers' need for technology is an opportunity for KPN, where KPN can provide ICT to unlock a better future for our planet and its people.

How?

Monitoring Service is a service which automatically fulfills the need of the crops. Trained AI algorithm can constantly compared real-time data of greenhouse for the optimal growing process. This stimulates the optimal growing process for a crop, while **only using the needed resources.**

This Monitoring Service can be developed by three steps: Become a smart grower, Become a remote grower and Become an autonomous grower.

01 — Become a smart grower - 2022
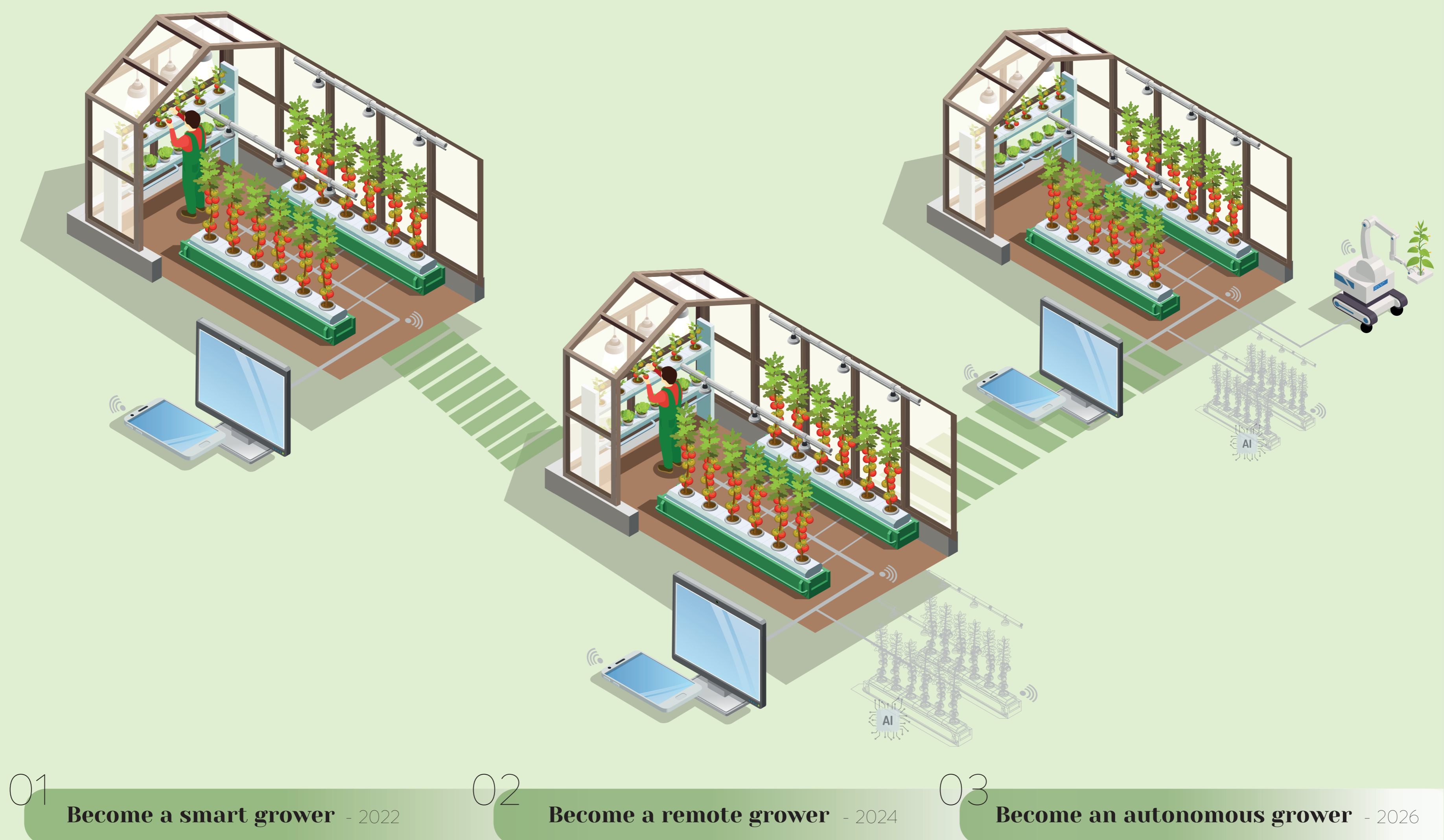
Horizon 1 starts in 2022 and focuses on **data collection of the crops' growing process** and the training process of artificial intelligence (AI). The benefit for the grower is the improved, more detailed version of feedback from his greenhouse on **plant scale.**

02 — Become a remote grower - 2024

Horizon 2 starts in 2024 and focuses on **creating real-time feedback** for the grower. Where data of his crops are collected and converted into a digital twin of his greenhouse. AI continuously compares the digital twin, with the perfect version of the greenhouse. This results in real-time feedback for the grower of what **every plant needs to optimally grow.**

03 — Become an autonomous grower - 2026

Horizon 3 starts in 2026 and will focus on **making the greenhouses autonomous.** Based on the data and experience of the last two horizons robotics are included to regulated all resources and circumstances of the greenhouse and its crops. **One platform connects all technology** in the greenhouse, and connectivity will make them collaborate.

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