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CURRENT TRL  
& TARGET TRL

## SHELF LIFE

EXCELLENT SHELF  
LIFE AT AN  
ACCEPTABLE COST

## LIGHTING

PROVIDE  
AN OPTIMAL  
SOLUTION

## SENSORS

TO PROVIDE  
PROCESS  
FEEDBACK



## COUNTRIES



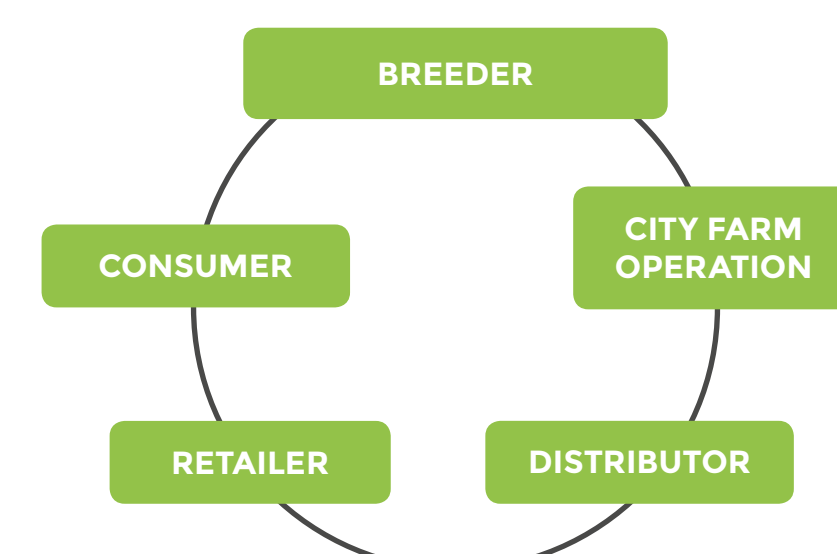
## PARTNERS

**PHILIPS** Lighting



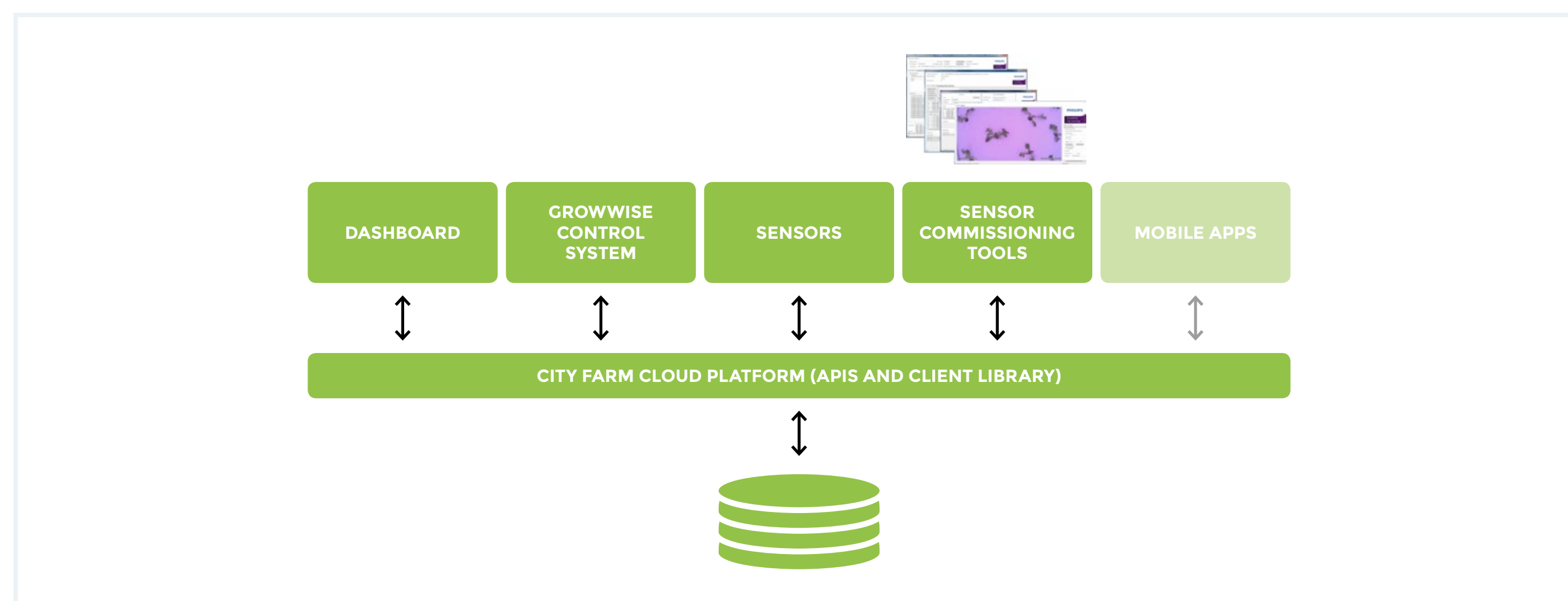
# 4.1 CITY FARMING LEAFY VEGETABLES

Growing sufficient food of high quality for a growing population is becoming a challenge. There is a lack of arable land and a shortage of qualified growers. New and sustainable methods for producing food of high quality in a controlled environment with limited human intervention are required. City farming (a.k.a. vertical farming) is such a method that is gaining momentum.



City farming is an innovation in food production that benefits all actors in the value chain.

## HOW IT WORKS



- A data platform that enables storage and retrieval of data via web APIs and a client library.
- Sensors that measure relevant plant properties.
- A system for dynamically controlling the lighting (level and spectrum) for optimum plant growth.
- Cloud applications such as dashboards and tools (e.g. for commissioning sensors)

## THE IMPACT

### OUR OBJECTIVES

It is an aim of this use-case to develop an IOT sensing and control solution for city farms to be able to continuously monitor, automate, and improve their operations. This solution includes:

- The development of a lighting control system,
- The deployment of suitable sensors to measure plant growth parameters (typically 100 sensors per 1000 m2 of growing area),
- The development of a data platform.

### ON ECONOMY

The outcome of this use case will be an improvement of the city farms' efficiency, as well as its adoption rate. Relevant KPIs in this respect are the production yield (kg/m2/year) and shelf life and nitrate content of the produce (with lettuce as key crop).

### OTHER IMPACT

Compared to crop growth in open field and in greenhouses, city farms use far less water and crop waste. Moreover, no pesticides are used.