

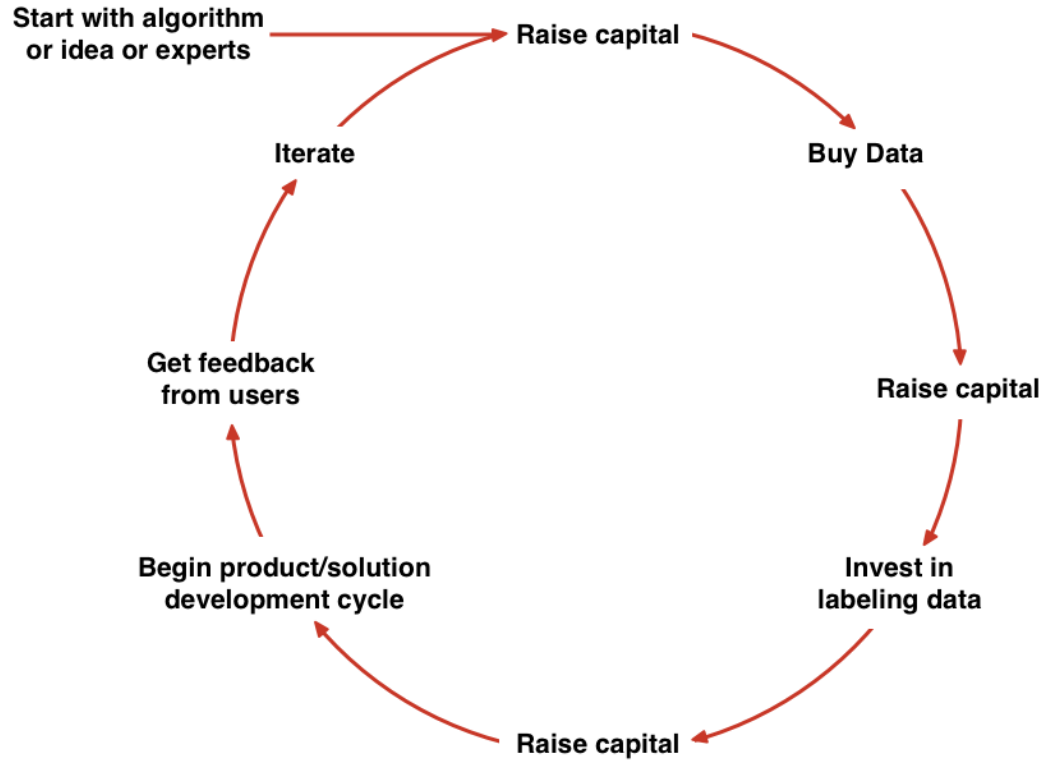
embedded **VISION** SUMMIT 2018

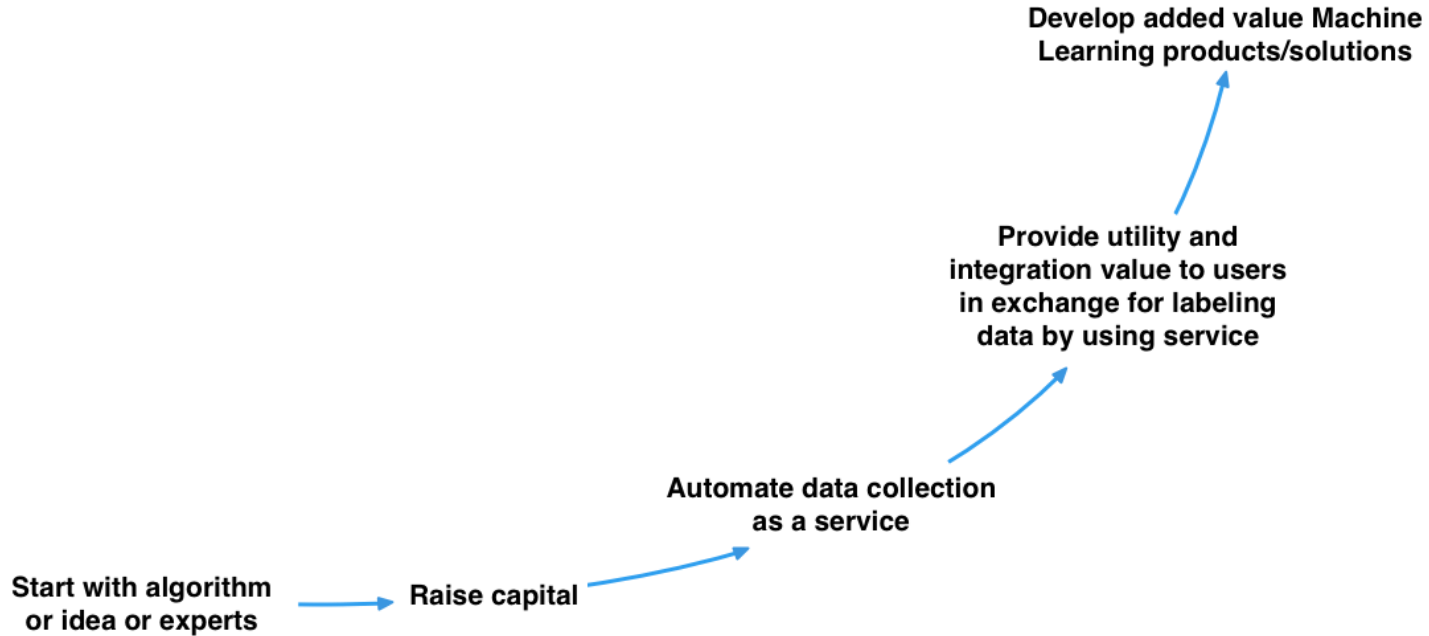
Data as a Service:
We collect data. We sell time



Matt King
May 22, 2018

Traditional AI Startup





| Startup Model | Value Driven Model |
|---|--|
| Buy Data | Sell Data |
| Bottleneck on expert labor to label data | Customers are experts who use and propagate product |
| Back and forth cycle starts with internal ideas then gets customer feedback | Customer intimacy and focus on solving customer problems driven by starting with customer use of product |
| Open ended problem solving | Value driven problem focus |

Problem – Manual data collection at scale is inefficient, inconsistent and imprecise







Industry standard data collection system



Current State of Greenhouse Data Collection: Subjective, infrequent, low sample rate, manual data

If you are growing one rose bush in your back yard...

seeing what it needs to be healthy is simple.

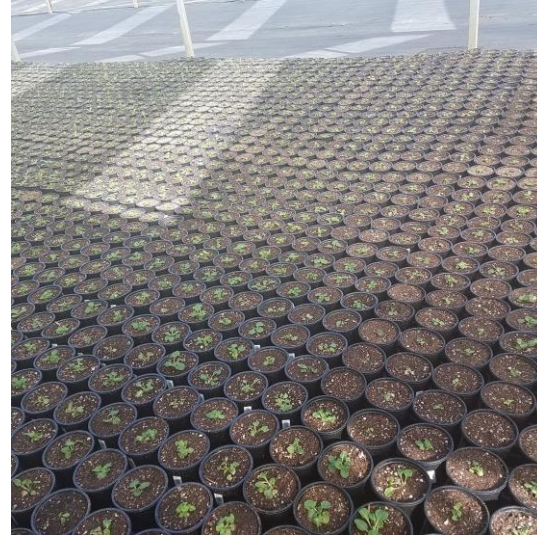
If you are growing millions of poinsettias to meet a strict manufacturing quality spec, and deliver in a 3 day seasonal window...

seeing what they need is more complicated.

Consistent, repeatable, results is the #1 aim of the grower.
Inconsistent, imprecise information is the #1 challenge to achieving that goal.



View from walkway



View from up close

Growing is a manufacturing process. Highly variable inputs yield highly variable outputs



These plants will each absorb the same water, fertilizer, pesticide, fungicide and labor costs, but many will not be sellable.

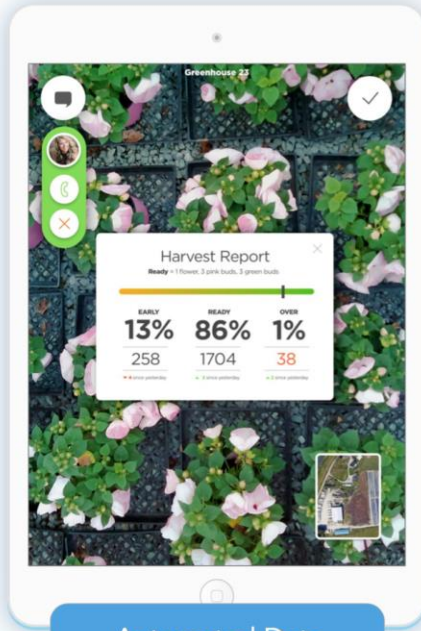
What is measured.... can be improved

- Computer Vision enables instrumenting each individual plant as a 'widget' in an assembly line
- Measuring real time growth rate turns the growing process into a standardized manufacturing process
- Earlier detection of variations allows intervention to correct, or culling to reduce wasted production costs

- Luna is Data as a Service
 - Monthly subscription or per plant pricing
 - Fully managed and supported service lets growers focus on growing
 - Fully financed installation avoids CapEx budget cycle
 - Participatory per plant pricing model aligns incentives, and ties payment to cash flow

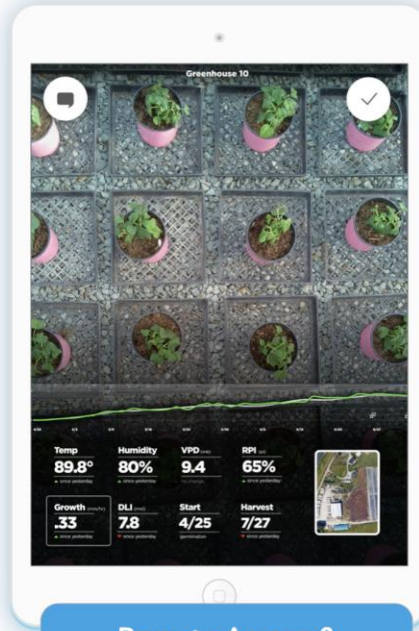






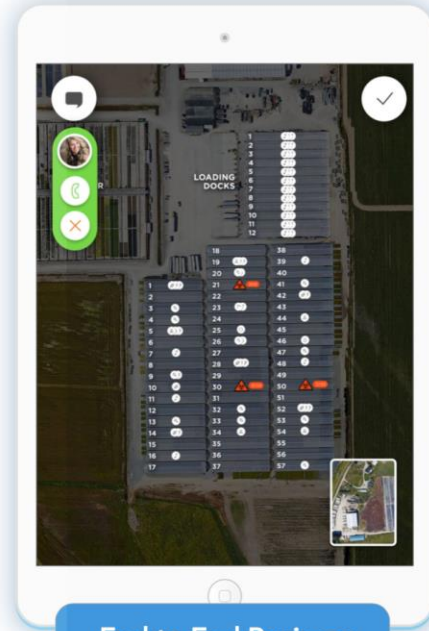
Automated Data
Collection & Analysis

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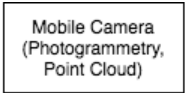


Remote Access &
Distributed Management

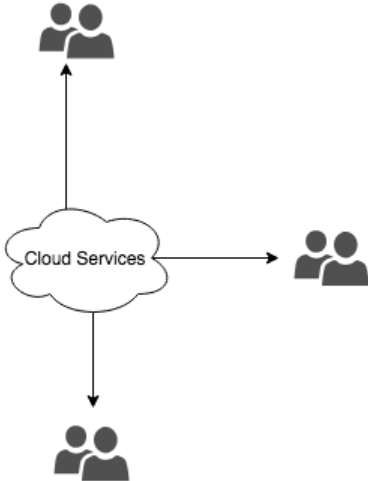
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End to End Business
Integration



Edge Server
(Cache, Image Pre-
processing, Data Filtering)



Environmental
Sensors

- Floriculture
 - 100,000 – 200,000 square feet greenhouses
 - Germination – Young Plants
 - Growing – Annuals, Perennials, Woody plants
 - Shipping – Inventory tracking
- Produce
 - 100,000 - 200,000 square feet greenhouses
 - Germination – Young Plants
 - Growing – Lettuce and leafy greens (Deep water hydroponics)
- Cannabis
 - 20,000 – 50,000 square feet greenhouses
 - Germination – Young Plants
 - Growing – Local species

In Progress Commercial Deployment Types

- Floriculture

- 5,000,000 – 15,000,000 square feet greenhouses
- Germination – Young Plants
- Growing – Annuals, Perennials, Woody plants
- Shipping – Inventory tracking

- Retail ‘Big Box’ (Greenhouse Z)

- 15,000 – 20,000 square foot garden centers
- ‘Plan-o-gram’ retail modules – Annuals, Perennials, Woody plants
- Retail Inventory – Quality, replenishment, shrink
- Retail Traffic – Customer movement and buying patterns

Industrial Strengths

- Targeted solution of complicated problems
- Known professional experts in field
- Measurable business process impacts

- Selling data is better than buying data
- Start with solving a problem
- Utility = Value
- Turn expertise bottleneck into acceleration factor
- Coordinated crowdsourcing
- Better customer intimacy yields better customer engagement
- Using the solution trains the ML and the company