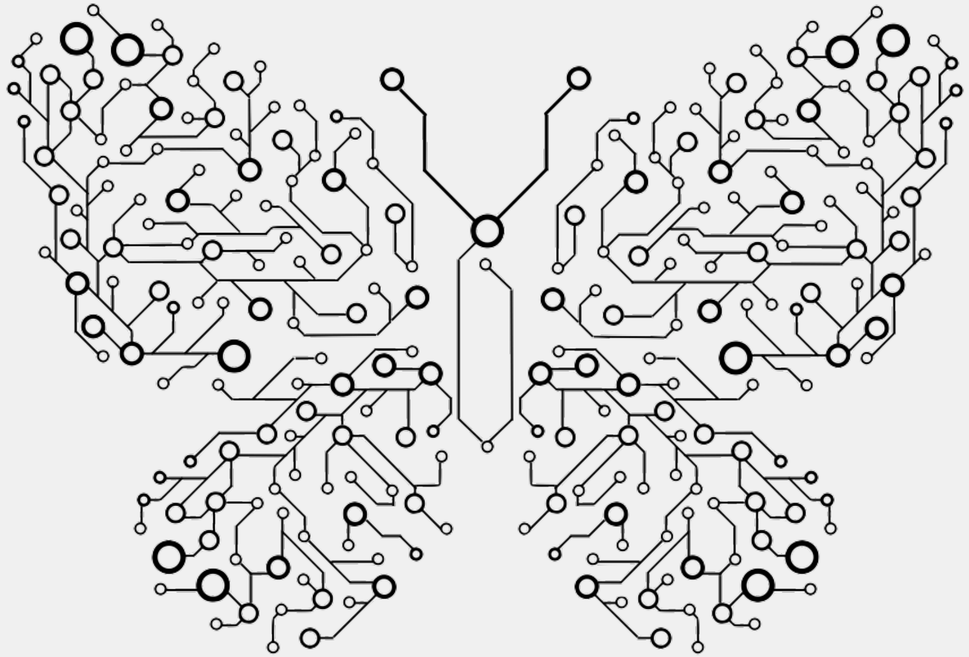
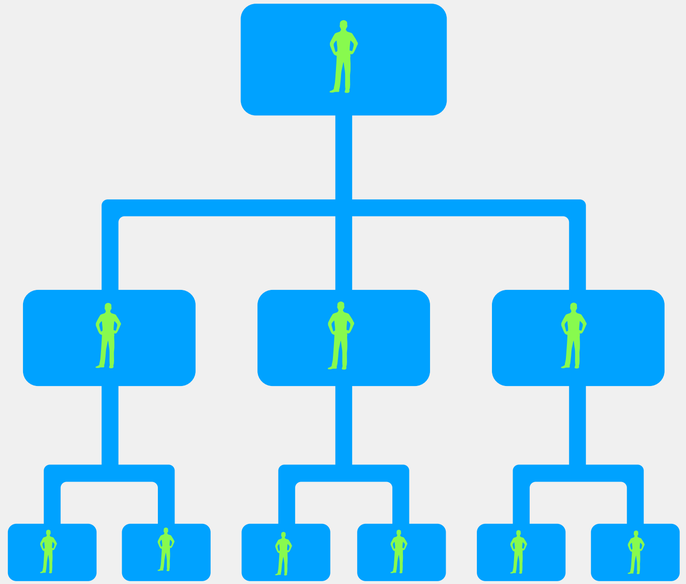


Customer Discovery Lessons Learned

V. Hunter Adams
NBA 5640

1. Articulate why customer discovery conversations are strange.
2. Discuss the problems that this strangeness causes.
3. Discuss how to avoid these problems.
4. Use the Monarch as a case study.



You are ambitious.

You care about your status in your dominance hierarchy.

Customer discovery conversations are strange because:

1. Any status you've earned means nothing to the other person.
2.
3.

Customer discovery conversations are strange because:

(kind of, entrepreneurs seem to get a pass) →

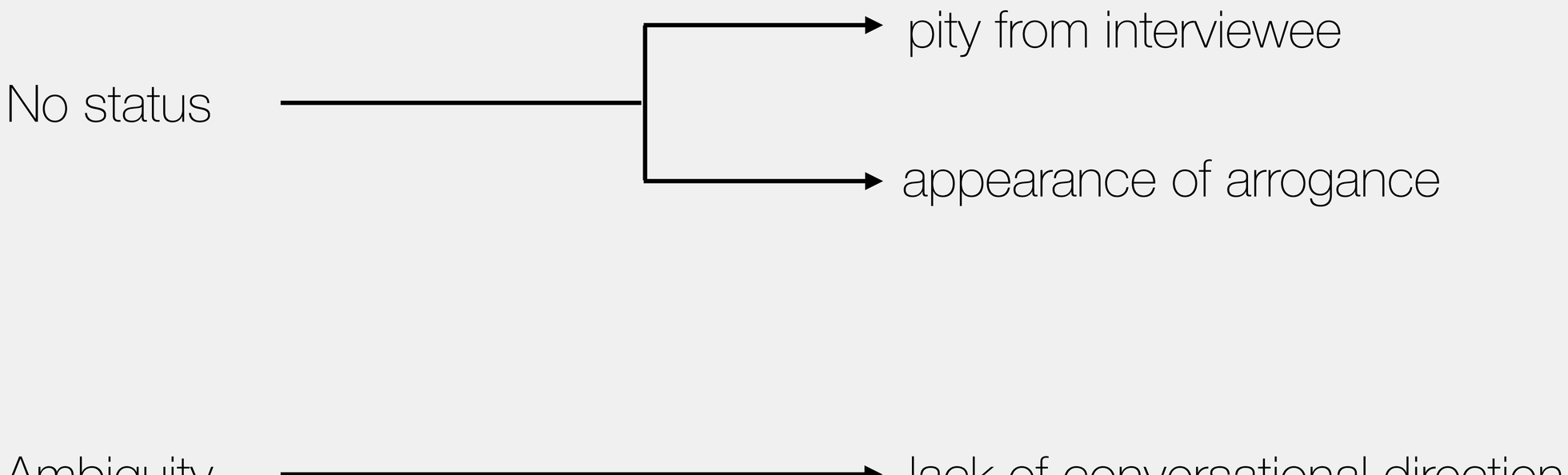
1. Any status you've earned means nothing to the other person.
2. You're trying to make money off of the other person, and they know that.
3.

Customer discovery conversations are strange because:

(kind of, entrepreneurs seem to get a pass) →

1. Any status you've earned means nothing to the other person.
2. You're trying to make money off of the other person, and they know that.
3. You cannot ask for the information that you want.

Problems this can cause:



How do you deal with this?

You'll arrive at your own answer, but here's what worked for me.

Starting the conversation:

1. All the stuff that goes without saying (smiling, not approaching at a sprint, etc.)
   - Don’t trigger a prey-animal response.
2.
3.
4.

Starting the co

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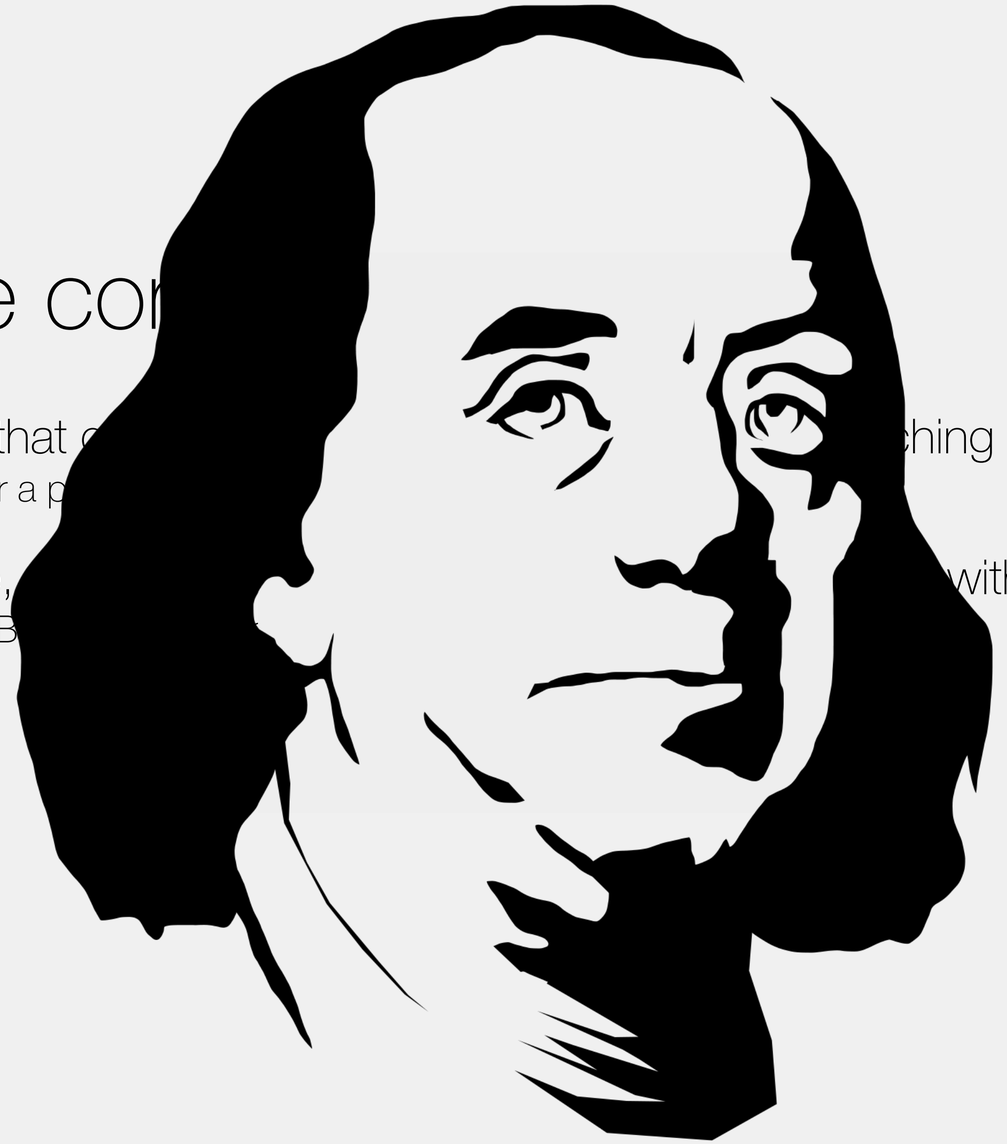
   - Don't trigger a p
2. "Excuse me, with something?"
   - Utilizes the B
3.
4.



Starting the conversation:

1. All the stuff that goes without saying (smiling, not approaching at a sprint, etc.)
   - Don’t trigger a prey-animal response.
2. “Excuse me, my name’s Hunter, could you please help me with something?”
   - Utilizes the Ben Franklin effect, let’s them demonstrate virtue
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1. All the stuff that goes without saying (smiling, not approaching at a sprint, etc.)
   - Don’t trigger a prey-animal response.
2. “Excuse me, my name’s Hunter, could you please help me with something?”
   - Utilizes the Ben Franklin effect, let’s them demonstrate virtue
3. “I’m an engineer (entrepreneur) and I’m trying to learn about vineyards, but I’m a bit out of my depth.”
   - Establish that I exist in a different hierarchy and that this will be an abnormal conversation - a break in routine
   - Suggest through my behavior that I have some status in that hierarchy.
   - Establish humility, and make myself vulnerable, which makes me trustworthy.
4.

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   - Establish humility, and make myself vulnerable, which makes me trustworthy.

4. "I've been trying to speak with industry experts like yourself to learn a bit about how folks do what they do. Could I borrow a few minutes of your time?"
   - Elevates them to hero status.
   - Elevates their mundane daily activity to something mysterious and interesting
   - Suggests that others have turned me away, giving them the opportunity to be a good representative for their occupation

Starting the conversation:

1. All the stuff that goes without saying (smiling, not approaching at a sprint, etc.)
   - Don't ingratiate or ey-animal response

Successfully started a conversation:

- without appearing arrogant.
- without appearing pitiful.
- that elevates them and their routine to hero status.

2. "Excuse me, my name's Hunter, could you please help me with something?"
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   - Elevates their mundane daily activity to something mysterious and interesting
   - Suggests that others have turned me away, giving them the opportunity to be a good representative for their occupation

The challenge now is to hold that conversation.

Maintaining the conversation:

1. “Can you tell me about the most significant threat to your grapes last season?”
    - Immediately elicits a story.
    - Starts the conversation in a way that makes it hard to predict the direction that it will take.
2.
3.
4.

Articulate a specific, quantifiable, verifiable hypothesis

Ask a high-level, story-eliciting question

Maintaining the conversation:

1. “Can you tell me about the most significant threat to your grapes last season?”
   - Immediately elicits a story.
   - Starts the conversation in a way that makes it hard to predict the direction that it will take.
2. Listen to response.
3. Ask a question based on something specific *that they said* that moves you toward the hypothesis.
4.

Confirm or reject hypothesis.

Maintaining the conversation:

1. “Can you tell me about the most significant threat to your grapes last season?”
   - Immediately elicits a story.
   - Starts the conversation in a way that makes it hard to predict the direction that it will take.
2. Play the hypothesis-testing game until hypothesis is confirmed or rejected.
3.
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3. “Thank you so much, this has been really, really helpful. I appreciate you taking the time. Would you mind if I reached out in the future, perhaps through email, if I have any more simple questions?”
   - Almost too gracious.
   - Opens a new relationship.

4.

Maintaining the conversation:

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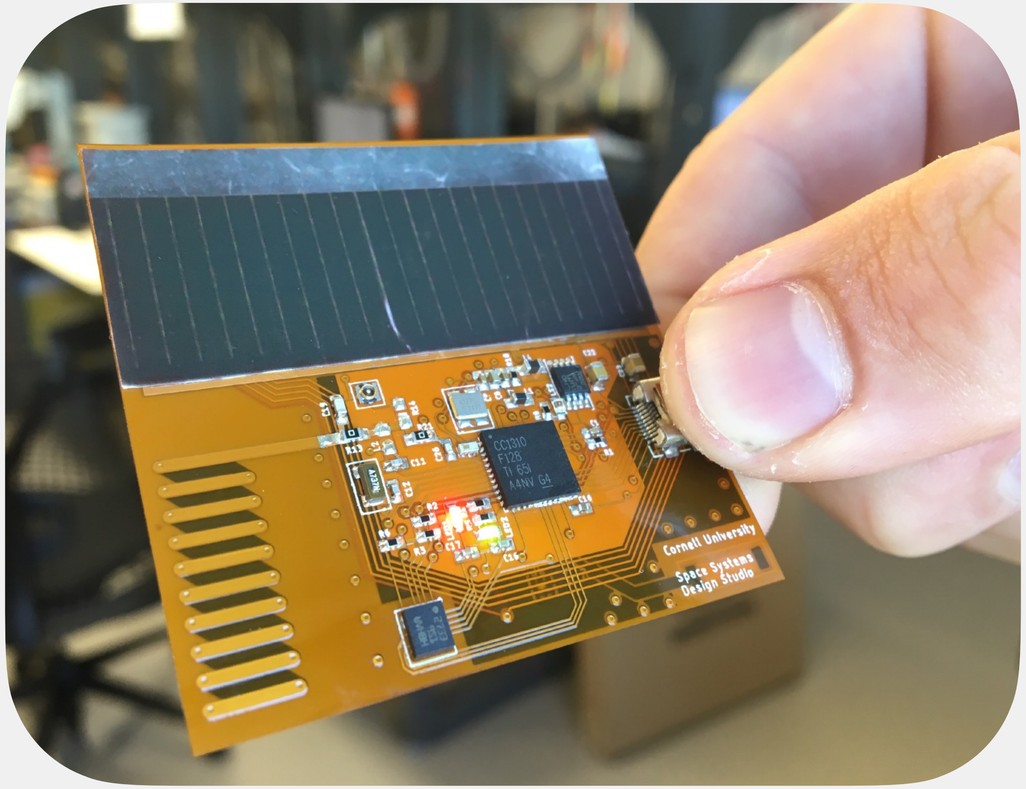
   - Almost too gracious.
   - Opens a new relationship.

4. “Is there anyone else that you can think of that would be good for me to contact?”

The whole process, abstracted:

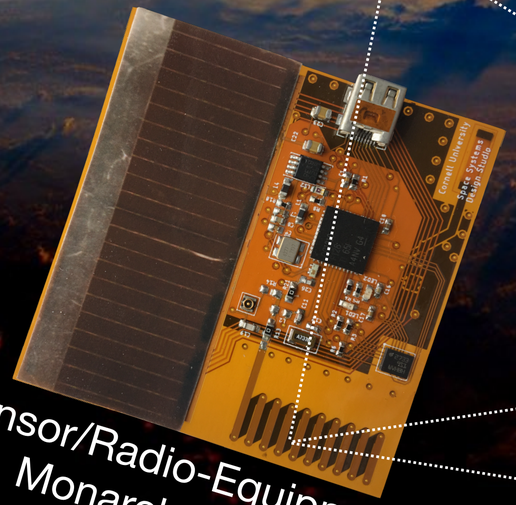
1. Behave like a properly socialized human being.
   - Don't trigger a prey-animal response.
2. Ask for help or a favor.
   - Utilizes the Ben Franklin effect
   - Let's them demonstrate virtue
3. Establish that you're from a different dominance hierarchy, and let your demeanor suggest some status within that hierarchy.
   - Makes it clear that this conversation will be a break in their routine.
4. Show humility and vulnerability
   - Makes you trustworthy
5. Elevate them and their routine to hero status
6. Elicit a story
7. Form follow-up questions based on specific things that they said.
8. Be almost too grateful, provide a means of continuing the conversation, and ask for contacts.

Monarch



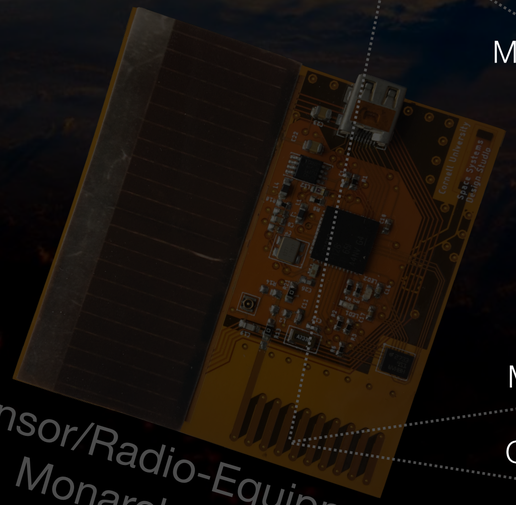
A device that enables cool-climate vineyard managers to take preventative action against wine grape loss to frost and fungus by providing realtime, in-canopy temperature and humidity data.

Ground Stations, Aggregating Data and Distributing Swarm Commands



Sensor/Radio-Equipped Monarch Node

Ground Stations, Aggregating Data and Distributing Swarm Commands



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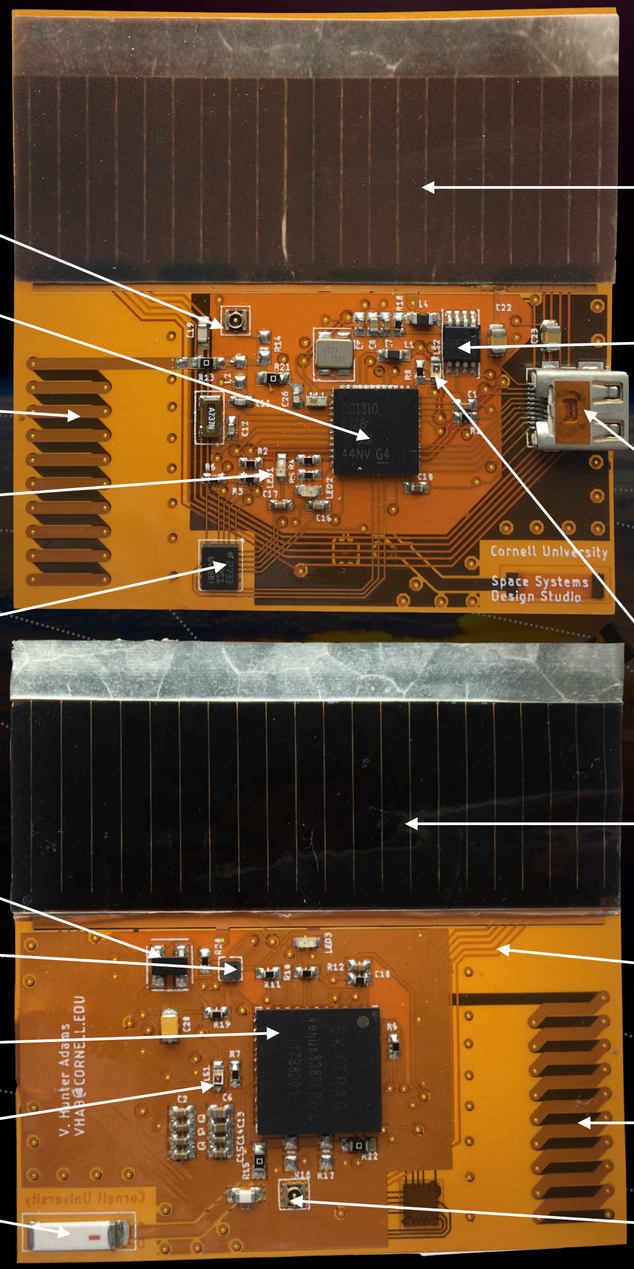

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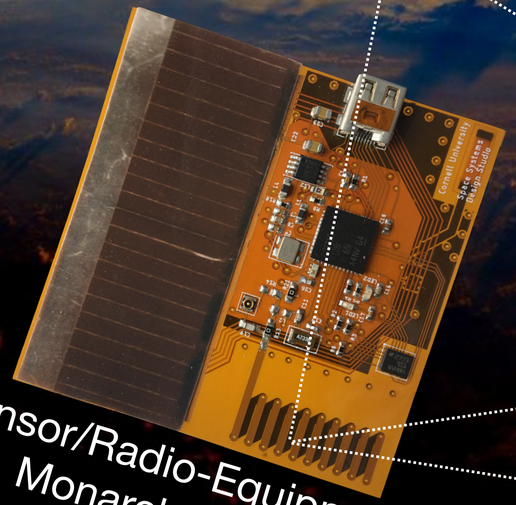
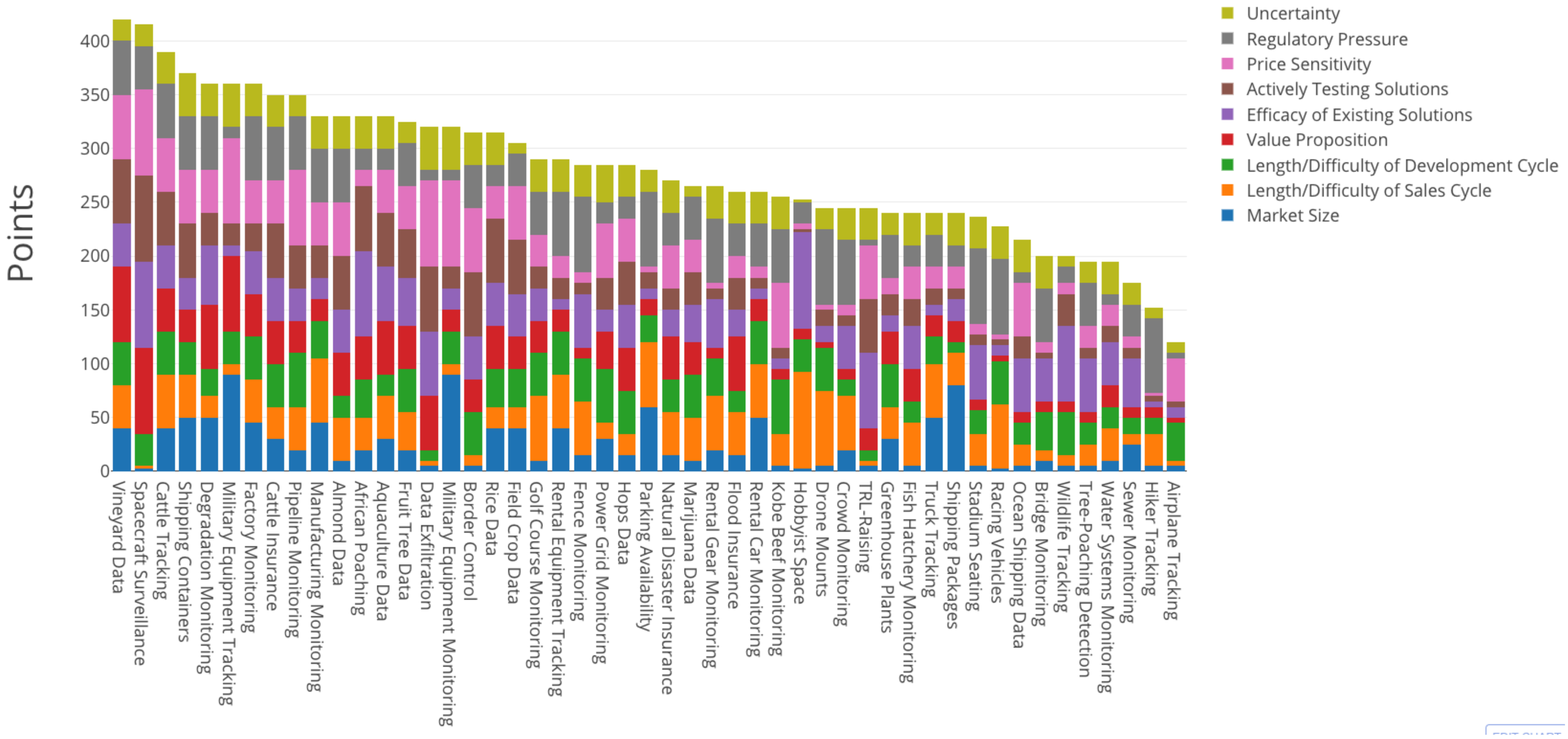
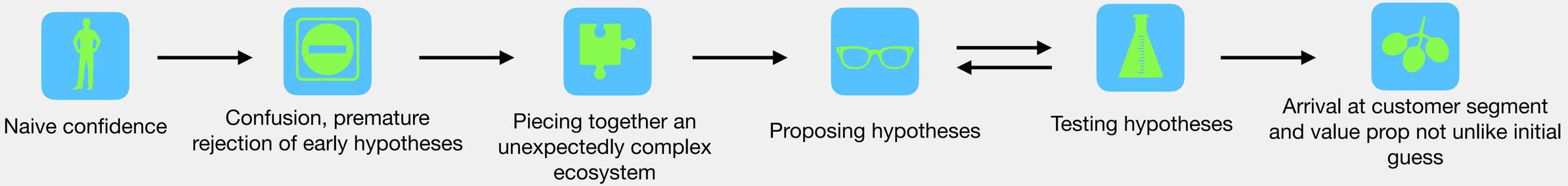


Sensor/Radio-Equipped Monarch Node

Markets Considered



Long story short . . .



Monarchs gather data that enable cool-climate vineyard managers to take preventative action against wine grape loss to frost and fungus by providing realtime, in-canopy temperature, humidity, and wetness data.

Hunter Adams

PhD candidate in aerospace engineering at Cornell University, focused on low-power electronic systems, online state estimation, and multi-agent systems.

Mason Peck

Professor of mechanical and aerospace engineering at Cornell University, former CTO of NASA.

Justine Vanden Heuvel

Professor of viticulture,
Cornell University

Key Partners

- Texas Instruments
- Alta Devices
- SkyTraq
- Board fabrication house
- Board assembly house

Key Activities

- Electronics prototyping
- Printed circuit board design
- Hardware installation and maintenance

Key Resources

- IP over a critical aspect of the system
- Electronics prototyping facility
- Humans

Value Propositions

- Improve the quality and prevent loss of wine grapes by enabling higher resolution maintenance of vineyards, as opposed to the standard practice of treating all grapes on a vineyard identically.
- Decrease the number of fungicide sprays per season at cool-climate vineyards *(in anticipation of regulation).*

Customer Relationships

- Free hardware installation and trial period
- Maintenance & updates
- Incentivize data sharing

Channels

- Trade shows (in particular Unified Wine and Grape Symposium)

Customer Segments

- Vineyard managers at cool-climate vineyards (end user).

Cost Structure

- Printed circuit board fabrication and assembly
- Receiver station fabrication, assembly, and installation
- Facilities costs
- Human beings

Revenue Streams

- Hardware leases by vineyards
- Data monetization through a subscription service

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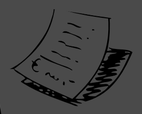

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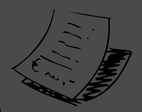

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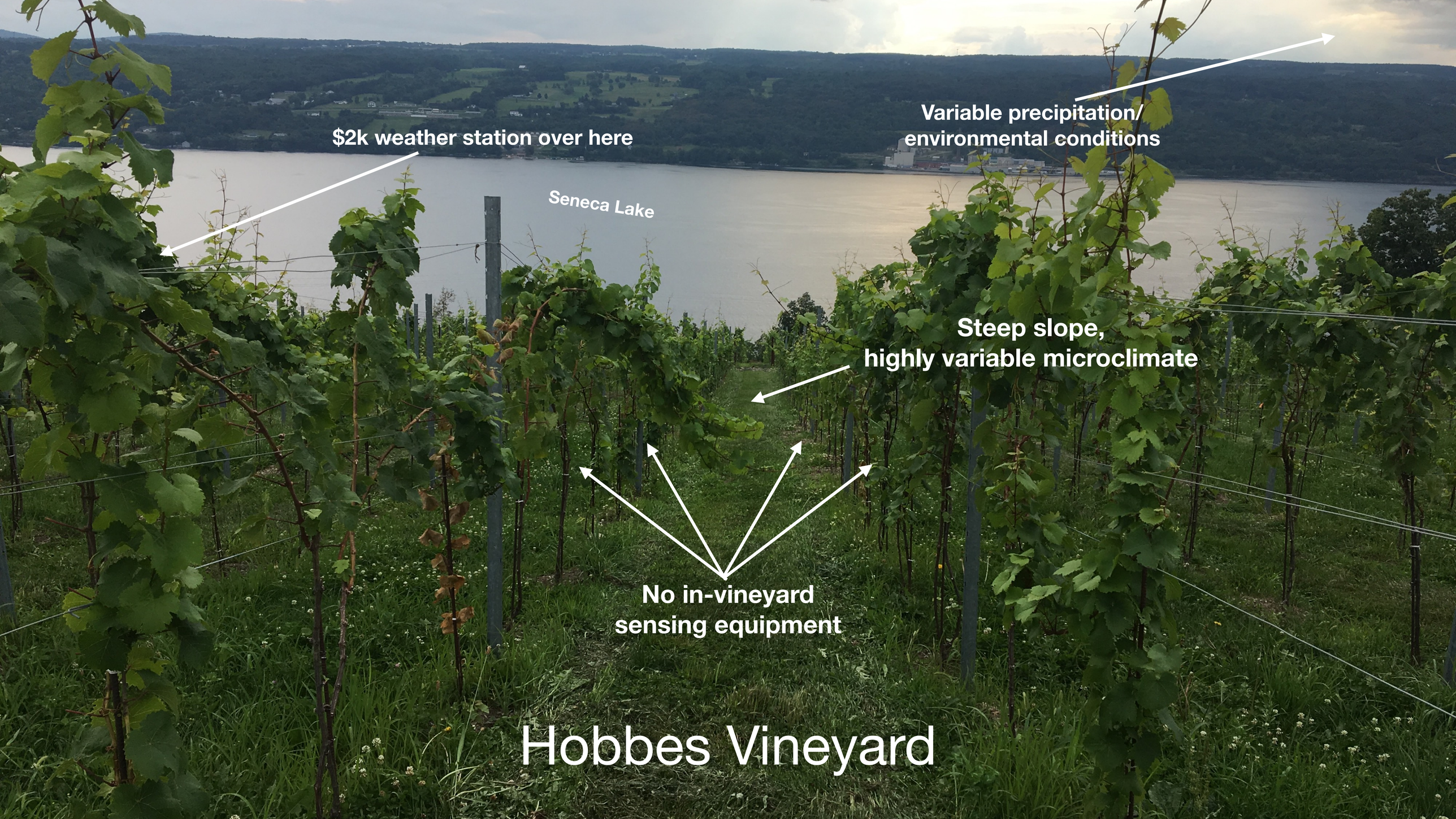


Hobbes Vineyard

Value Propositions

- Decrease number of fungicide sprays per season (decreases labor/cost)
- Improve quality of wine grapes (increasing selling price)
- Decrease loss of wine grapes
- Reduce wine disturbance during analysis
- Improve wine marketability to sustainability conscious consumers
- Improve leaf management, thereby preventing sun damage to wine grapes
- Deter birds from vineyards
- Improve sustainability score of vineyard to make new retailers available for sales (e.g. Whole ...
- Provide additional vineyard data to winemakers making grape purchasing decisions
- Provide plant-level soil moisture measurements to decrease water usage during irrigation
- Provide temperature data across a vineyard to prevent frost damage by letting vineyard ...

Customer Relationships

- Free hardware installation and trial period
- Maintenance & updates
- Incentivize data sharing

Channels

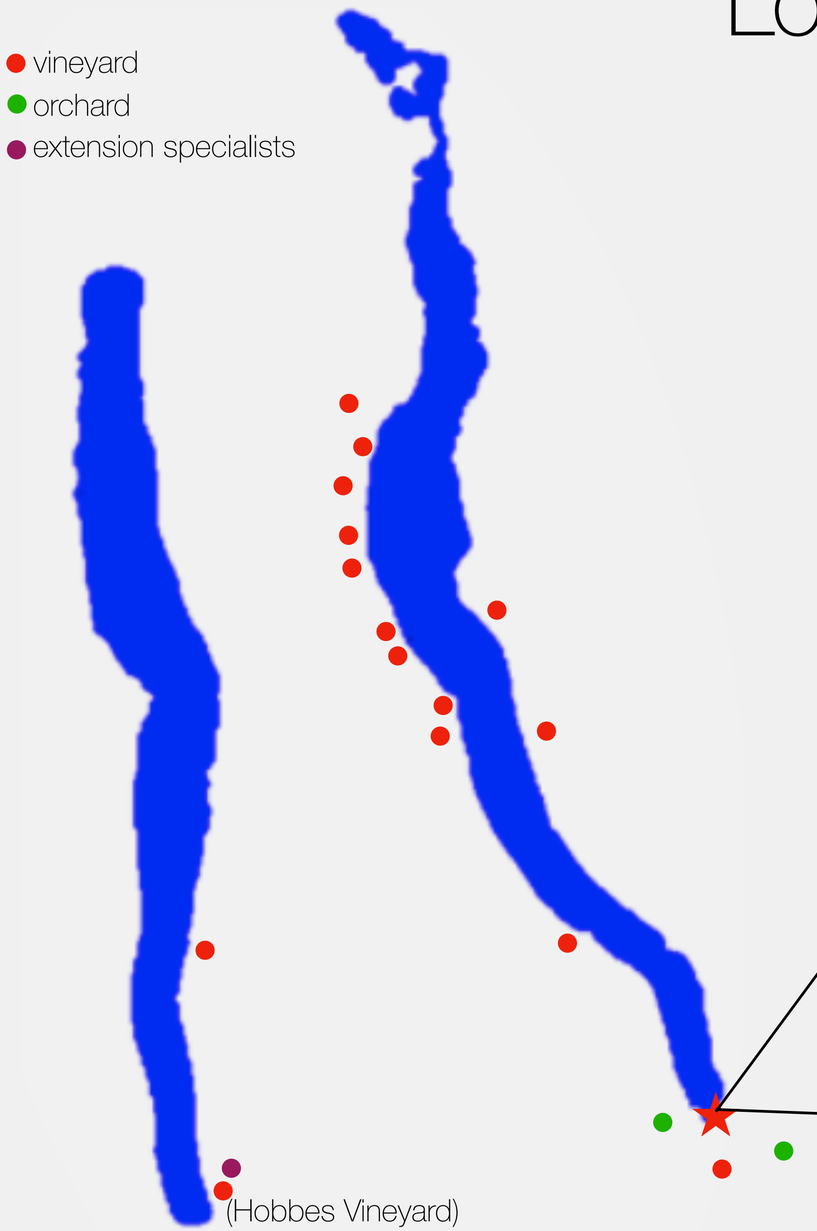
- Trade shows (in particular Unified Wine and Grape Symposium)
- Online purchasing
- On-site installation
- Direct Sales

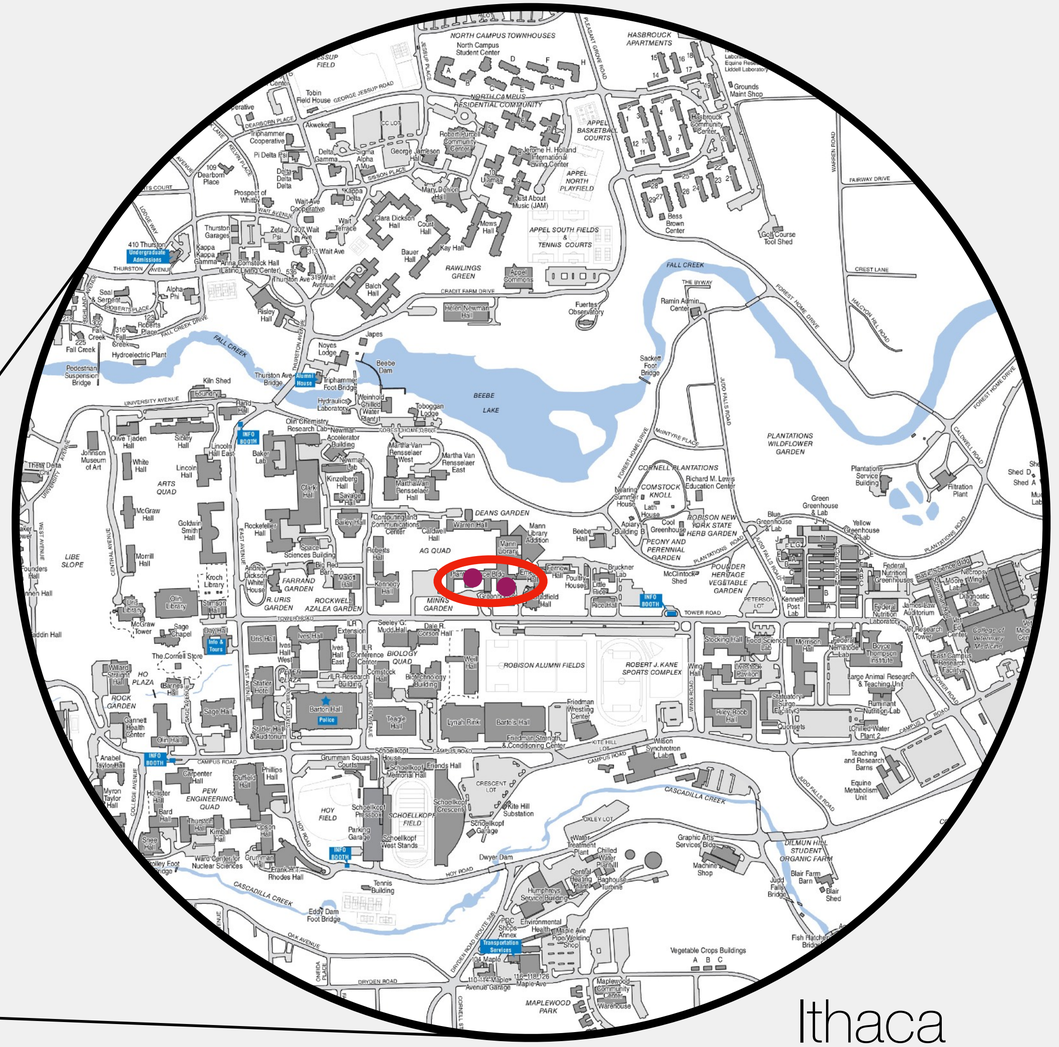
Customer Segments

- Vineyard managers at cool climate vineyards (end user)
- Data scientists at large California vineyards (like Scheid)
- Winemakers (end user)
- Winemaker agents (influencers)
- Vineyard managers at warm-climate vineyards (end user)
- Wine brokers (influencer)
- South African vineyard managers
- Academic Extension Programs (influencers)
- Orchard Owners

Local on-site interviews

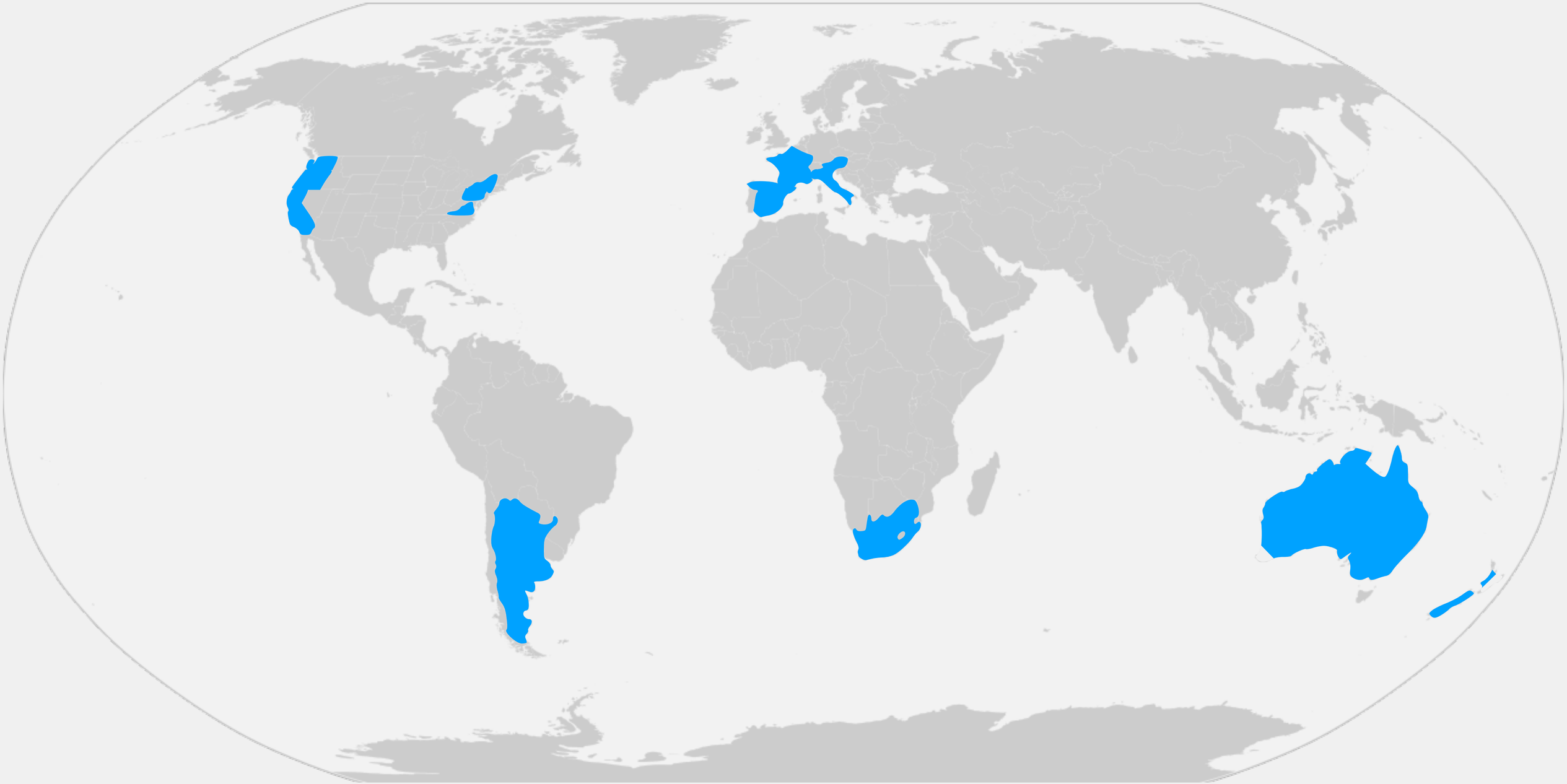
- vineyard
- orchard
- extension specialists

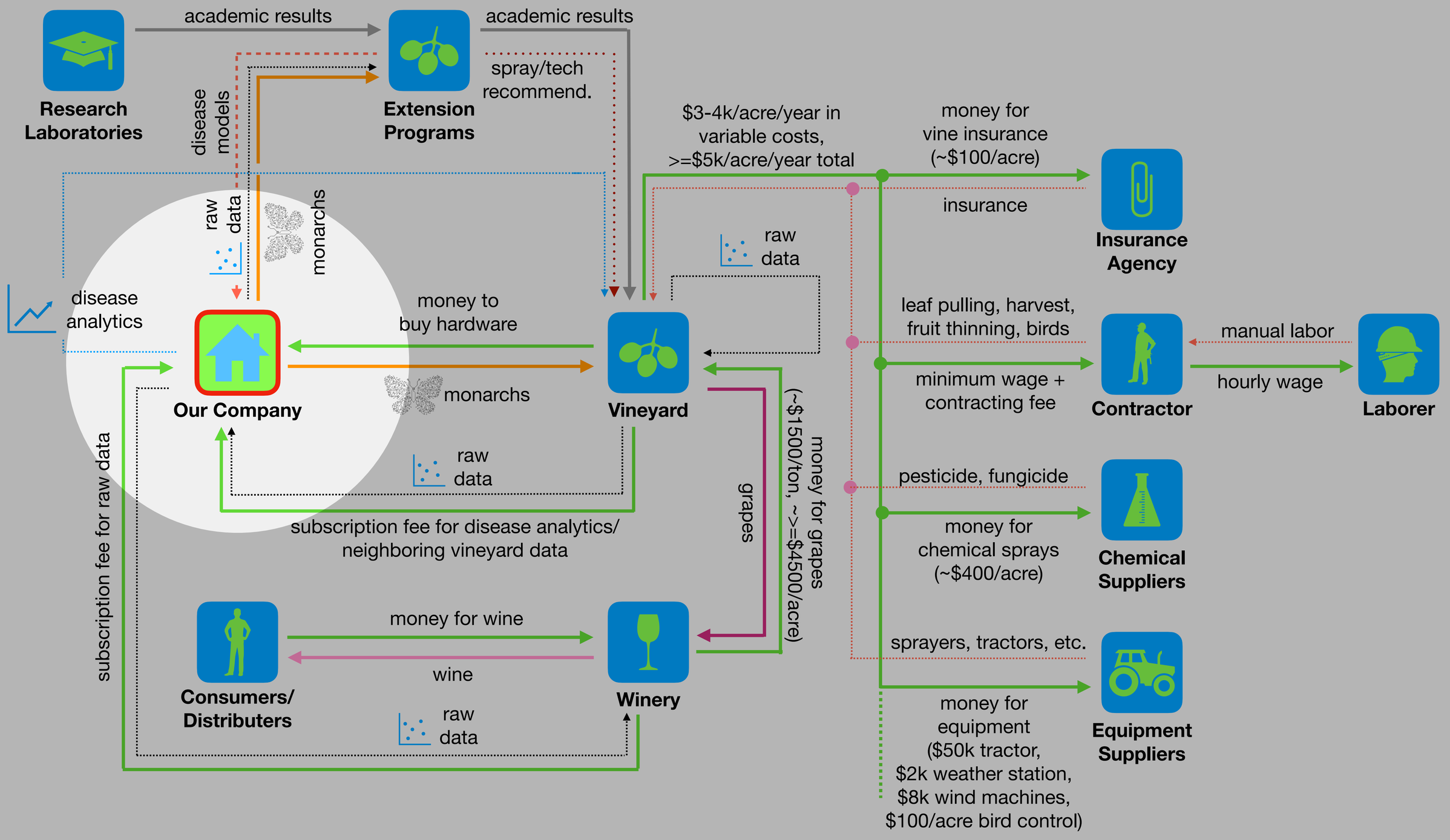




Ithaca

Nonlocal interviewee locations




Research Laboratories
academic results
Extension Programs
academic results
spray/tech recommend.
disease models
raw data
monarchs
disease analytics
Our Company
money to buy hardware
monarchs
raw data
Vineyard
raw data
$3-4k/acre/year in variable costs, >=$5k/acre/year total
money for vine insurance (~$100/acre)
insurance
Insurance Agency
leaf pulling, harvest, fruit thinning, birds
minimum wage + contracting fee
Contractor
manual labor
hourly wage
Laborer
pesticide, fungicide
money for chemical sprays (~$400/acre)
Chemical Suppliers
sprayers, tractors, etc.
money for equipment ($50k tractor, $2k weather station, $8k wind machines, $100/acre bird control)
Equipment Suppliers
subscription fee for raw data
subscription fee for disease analytics/ neighboring vineyard data
grapes
money for grapes (~$1500/ton, ~>=$4500/acre)
Consumers/ Distributers
money for wine
wine
raw data
Winery

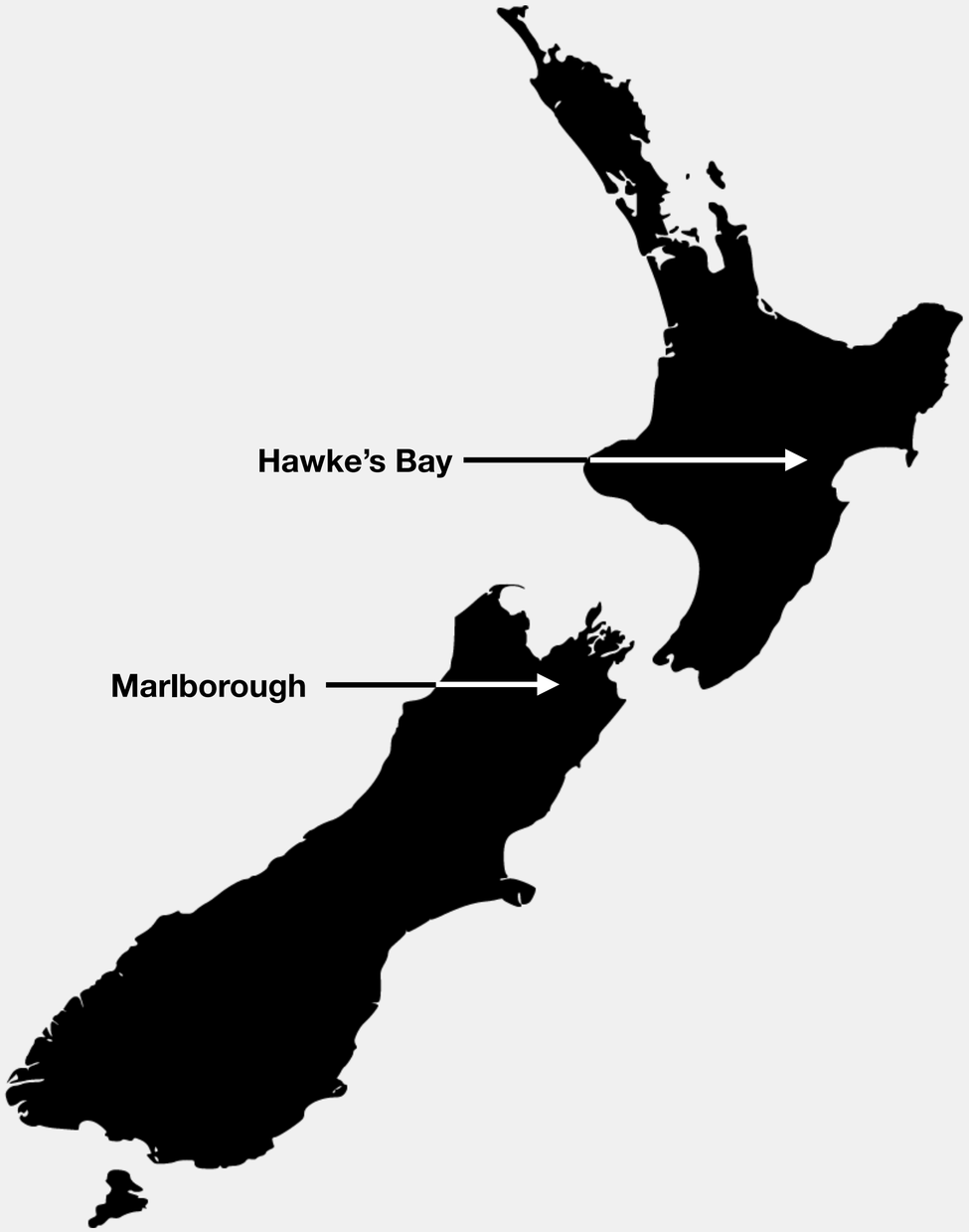
I learn of every new technology and build my entire spray program through the Finger Lakes Grape Growers meetings with the Cornell Extension.

Annie Bachman - Lakeshore Vineyard

When your livelihood depends on this year's crop, you are not afforded the luxury of being forward-thinking.

Our only job is to make sure that we have clean grapes at this year's harvest. - Jon Cupp, Thirsty Owl

. . . unless you are forced to be.



97 percent adherence to sustainability accreditation system

Principally concerned with *soil moisture* to inform irrigation.

An eventual market, but one that will require a slightly different technology.

Value Propositions

- Provide temperature data across a vineyard to prevent frost damage by letting vineyard ...
- Decrease loss of wine grapes
- Deter birds from vineyards
- Improve leaf management, thereby preventing sun damage to wine grapes
- Decrease number of fungicide sprays per season (decreases labor/cost)
- Improve quality of wine grapes (increasing selling price)
- Improve sustainability score of vineyard to make new retailers available for sales (e.g. Whole ...
- Provide additional vineyard data to winemakers making grape purchasing decisions
- Provide plant-level soil moisture measurements to decrease water usage during irrigation
- Provide insurance agents with data that proves crop destruction due to weather and not ...

Customer Relationships

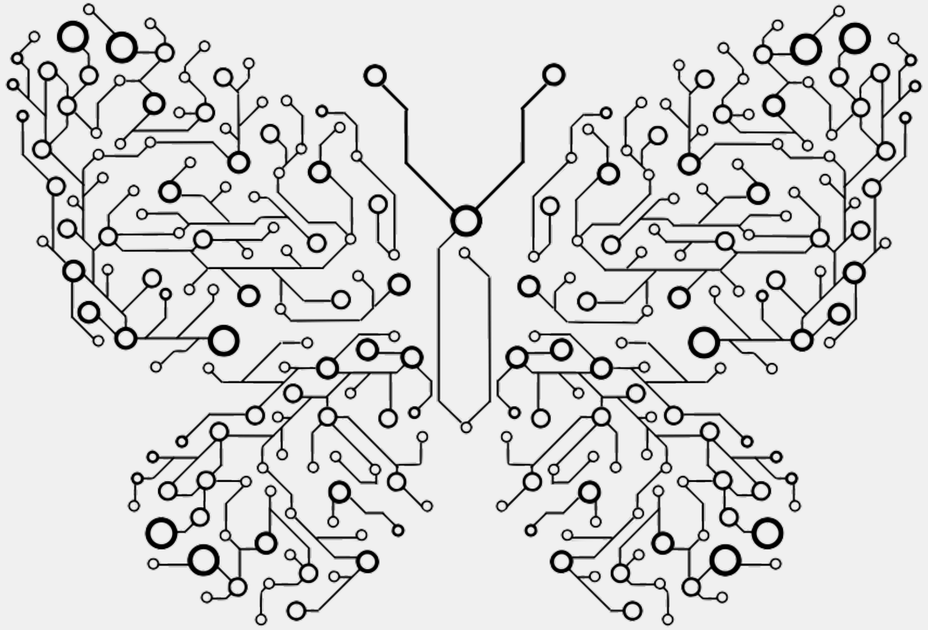
- Maintenance & updates
- Incentivize data sharing
- Trade shows (Unified and IQ)

Channels

- Online purchasing
- On-site installation
- Direct Sales

Customer Segments

- Vineyard managers at cool climate vineyards (end user)
- Academic Extension Programs (influencers)
- Winemakers (end user)
- Data scientists at large California vineyards (like Scheid)
- Winemaker agents (influencers)
- Vineyard managers at warm-climate vineyards (end user)
- Wine brokers (influencer)
- Orchard Owners
- Staple crop farm owners



go.

Customer discovery in Marlborough and Hawke's Bay, New Zealand

Sept. 1 - Sept. 8, 2018

Co-development of vineyard-specific Monarch with the Cornell Extension

Sept. 2018 - Jan. 2019

Development of advanced, internet-connected receiver

Sept. 2018 - Aug. 2019

✓ *Dairy calf demonstration*

Research-vineyard technology demonstration with minimum-viable receiver

Aug. 2019 - Oct. 2019

Development of minimum viable user interface for data presentation and analytics

Aug. 2019 - Oct. 2019

Graduation - Jan. 2020

USDA SBIR Application

Oct. 2019

Commercial testing and value-proving with local vineyards

Nov. 2019 - Nov. 2020

Commercial deployment of Monarchs

March. 2020 -

Blue Origin suborbital launch - 2020

Marketing of vineyard data to wineries, insurance agencies, agricultural consulting firms, and staple-crop farmers via subscription

Vineyard kickbacks from subscriptions for providing data

Development of consumer-market Monarch/receiver kits for distribution on Sparkfun

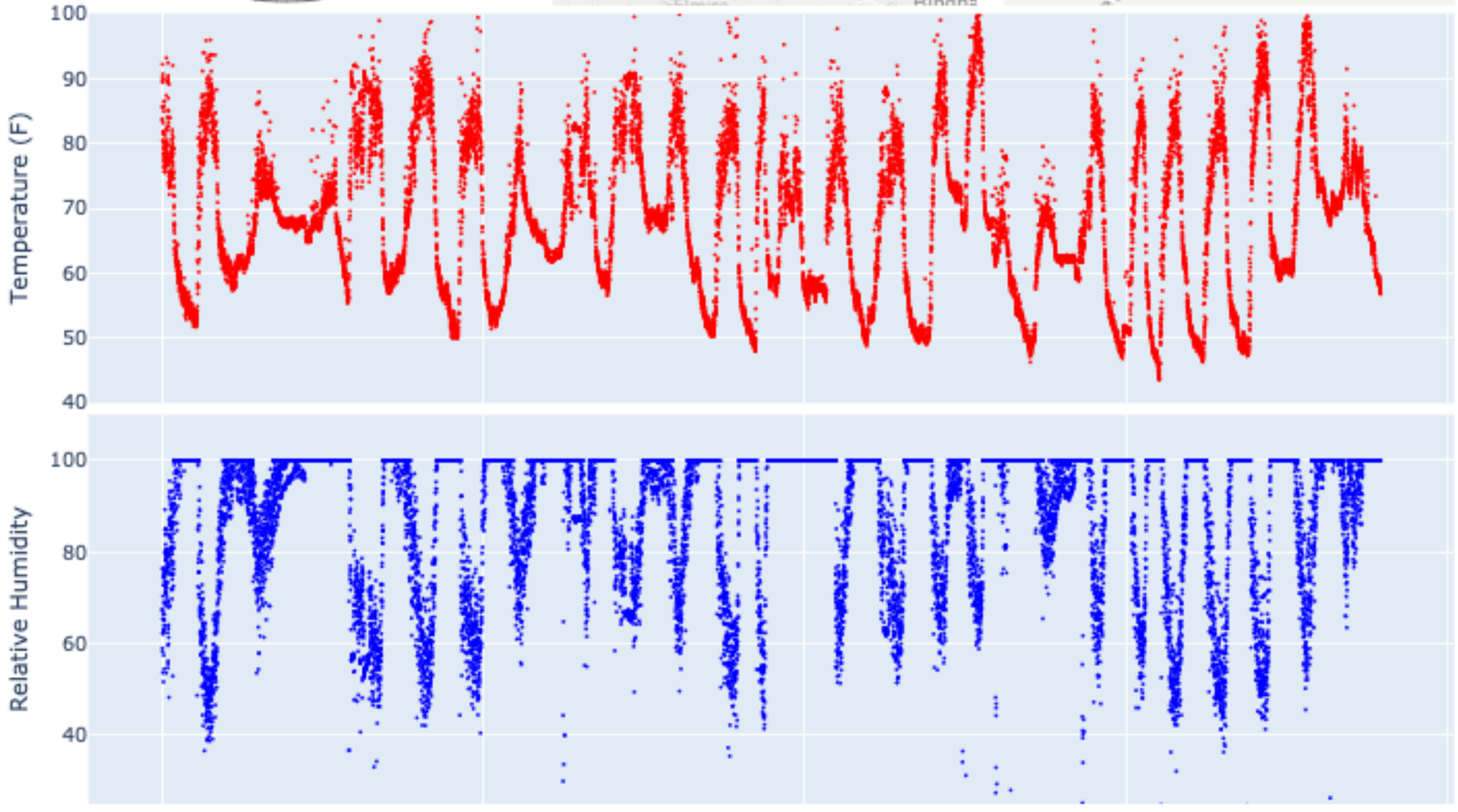
Development of other application-specific Monarchs using vineyards as case study

Realtime-market of kickbacks for data contribution based on data traffic

Global network of Monarchs providing realtime data for scientific research and market prediction.

Syracuse
Auburn
Geneva
Cortland
Ithaca
Marathon
Corning

NEWA Station


Temperature (F)
100
90
80
70
60
50
40
Relative Humidity
100
80
60
40