Market Intelligence

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ASU

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ILPIL
International Logistics &
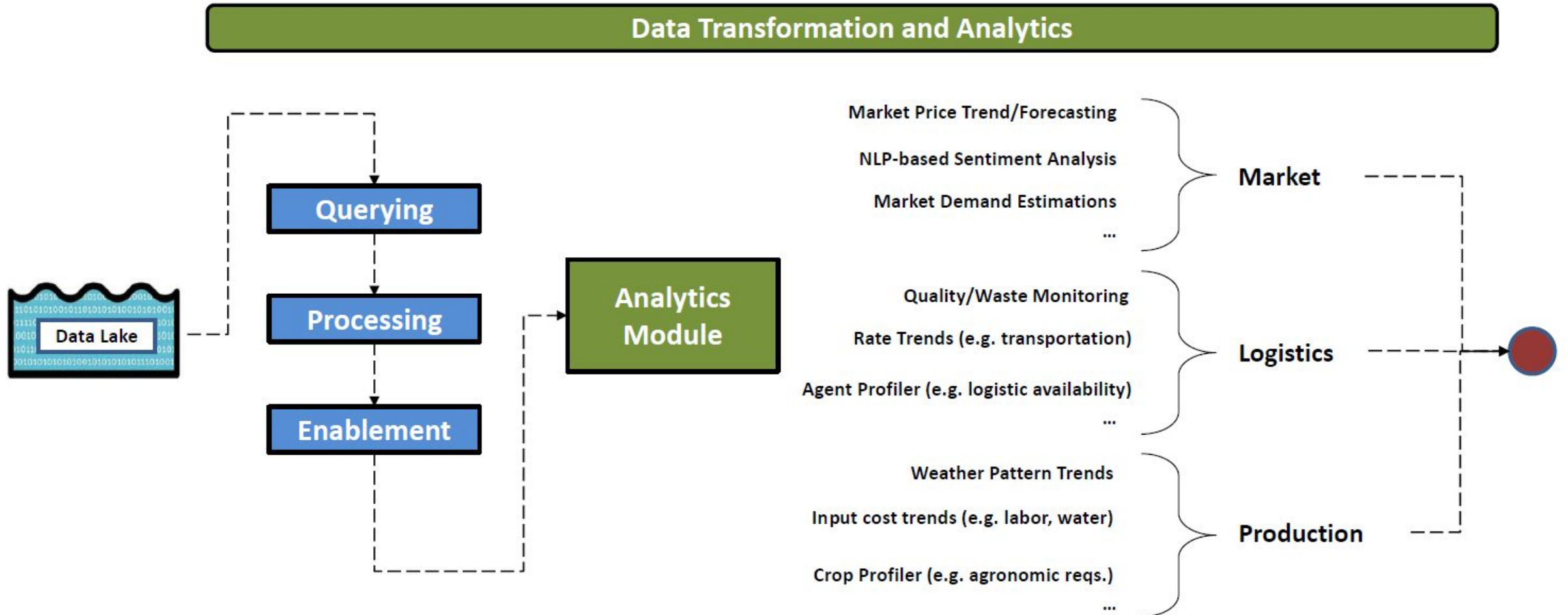Productivity Improvement lab

NM STATE UNIVERSITY

Agenda

- Deliverables Associated with Market Intelligence

- Definition and Refinement of General Activities

- Discussion of Each Element

- Conclusions

- Revise Project Management Plan

Market Intelligence
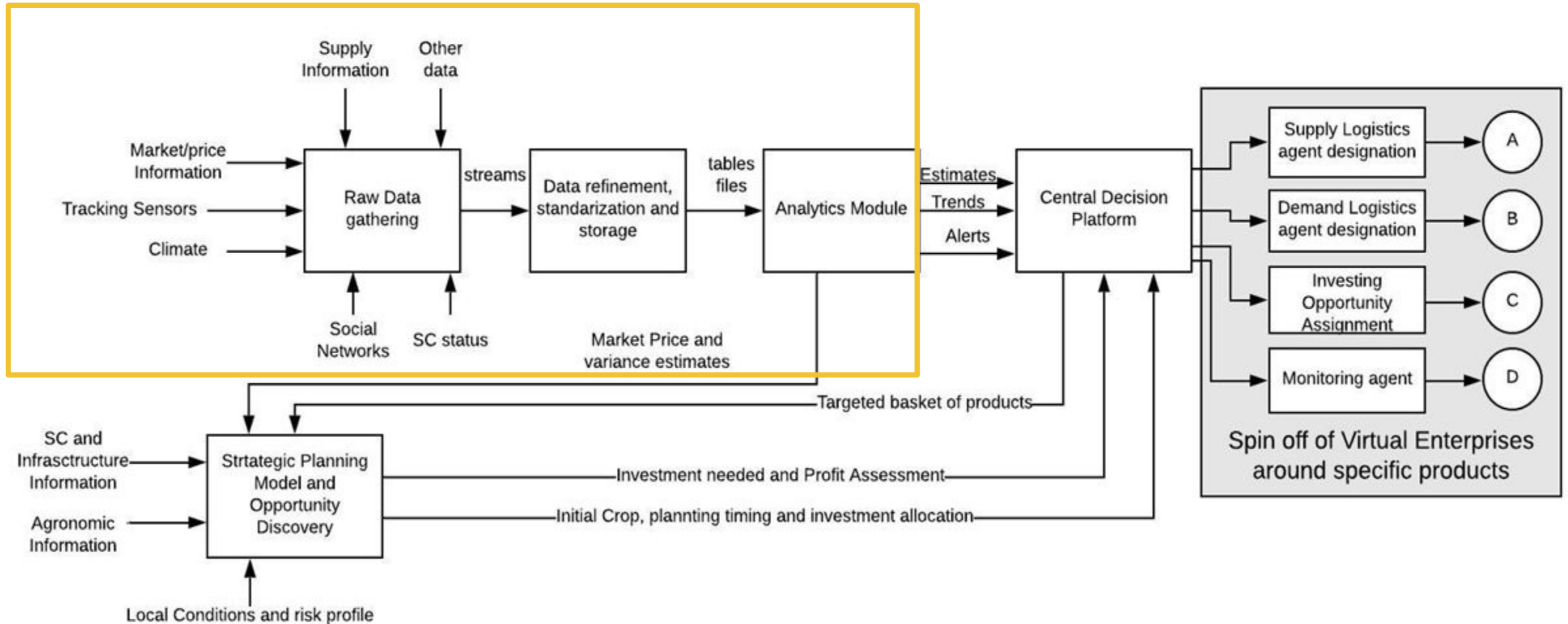
Data Analytics

Deliverables

4. Initial data dictionaries of market and logistics data streams (6 months)

8. Initial market intelligence and analytics module (18 months)

11. Develop general design of the demand side platform (30 months)

12. Prototype of integrated platform (24 – 32 months)

Elements

- Inventory Flow Monitoring

- Capacity Monitoring

- Transportation Capacity Monitoring

- Continuous Correlation Monitoring

- Social Network Monitoring

- POS Transaction Monitoring

- Price Monitoring and Forecast

Price Monitoring and Forecast

- What is it?

- Sources of information: Prices

  - Current: Latent and Explicit

  - Future

- What is the minimum necessary that we need for this?

- Plan for the Vision

- Development Roadmap

Social Network Monitoring

- What is it?

- Which networks should we monitor?
    - Google Trends
    - Twitter/ Instagram

- How many networks can we/should we monitor?

- Plan for Vision

- Development Roadmap

Sponsors

Students

Completed:

Omar Ahumada, Ph.D. Dissertation

Octavio Sánchez, M.S. Thesis

Hector Flores, M.S. Thesis

Nicholas Mason, Ph.D.

Christopher Wishon, Ph.D.

Hector Flores, Ph.D.

In Progress:

Rodrigo Ulloa, Ph.D.

Adnan Abdullahi, Ph.D.

Xaimarie Hernández Cruz, Ph.D.

Leroy Jacob Vargis, M.S.

Raghav Jeevendra, M.S.

Sárbith Aguilar, B.S.

John Romano, B.S.

Thank you.

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Afternoon Session

Market Intelligence

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What is Market Intelligence?

Market Intelligence is the process of collecting, interpreting, and disseminating information relevant to marketing decisions. It facilitates decision-making, directs the competitive process and simplifies marketing mechanisms.
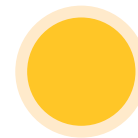
Data
Product price dropped by 5%

Information
Plat disease outbreak

Intelligence
Complementary product demand increased

Market Intelligence Goal

Our aim is to develop an integrated **market intelligence system** that is permanently acquiring relevant **data** to identify short- and long-term **trends** and correlations to prepare actionable **recommendations** to take advantage of short, mid and long-term opportunities to gain a competitive advantage.

Opportunity Discovery

Opportunity Discovery: Celery

- Sudden increase of interest for products.

- Is the interest due to a good or bad cause?

- Could this behaviour result in an increase or decrease of demand or prices?

Google Trends

celery: (United States)   celery juice: (United States)
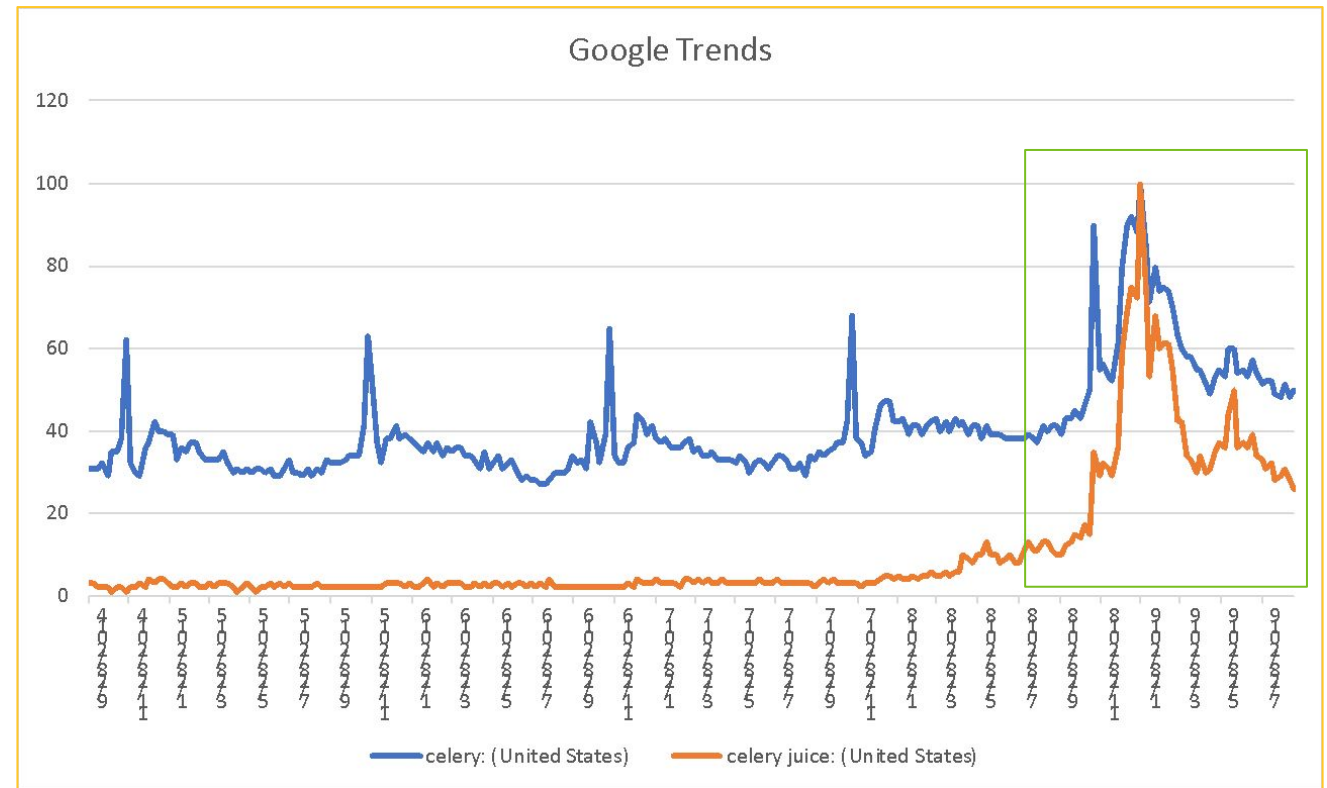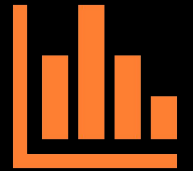
Opportunity Discovery: Celery

- The use of social networks can aid in identifying if the increase of interest is caused by a good or bad reason.
- By analyzing the manner in which people talk about the product, we can have a conjecture of what could happen in terms of the demand and prices for that product.

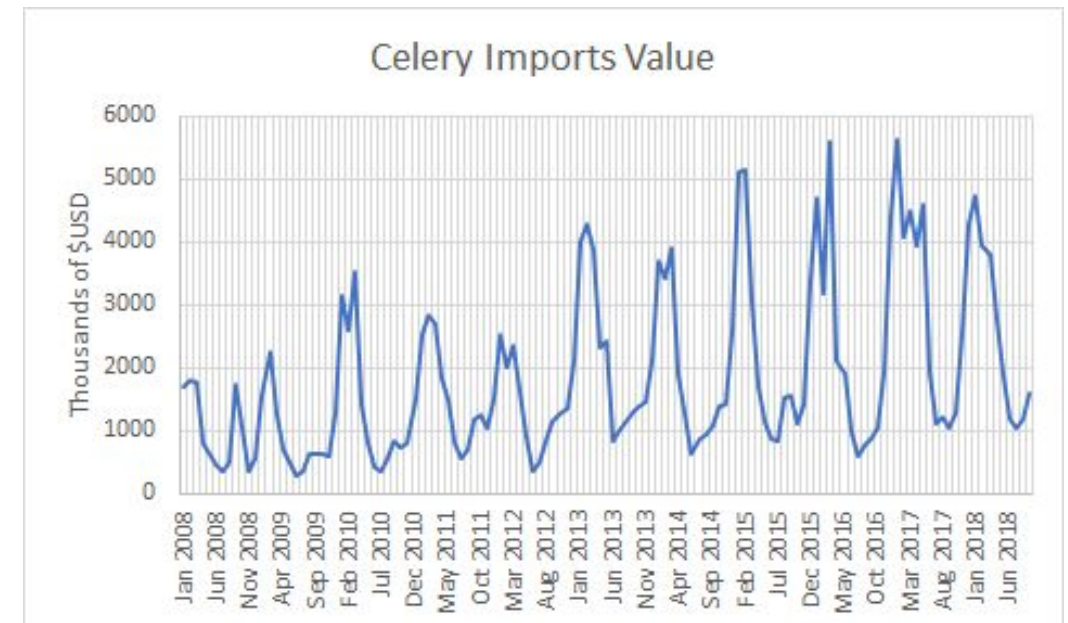TAKE THE CELERY JUICE CHALLENGE FOR THE SIMPLEST DETOX EVER

Sentiment Analysis: Celery

Score Sum = 29
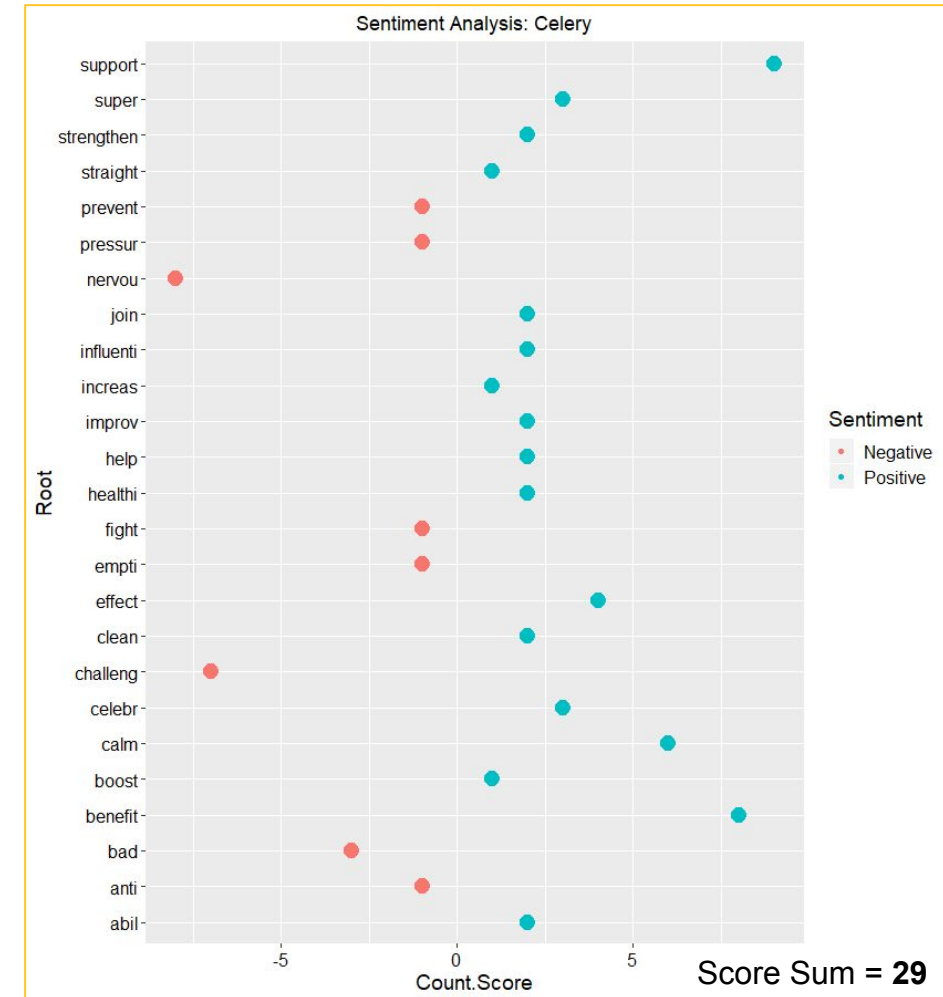
Opportunity Discovery: Celery

- Sudden interest caused an increase in prices and imports.

- Can we quantify the interest of a product and predict its impact on future demand and prices?
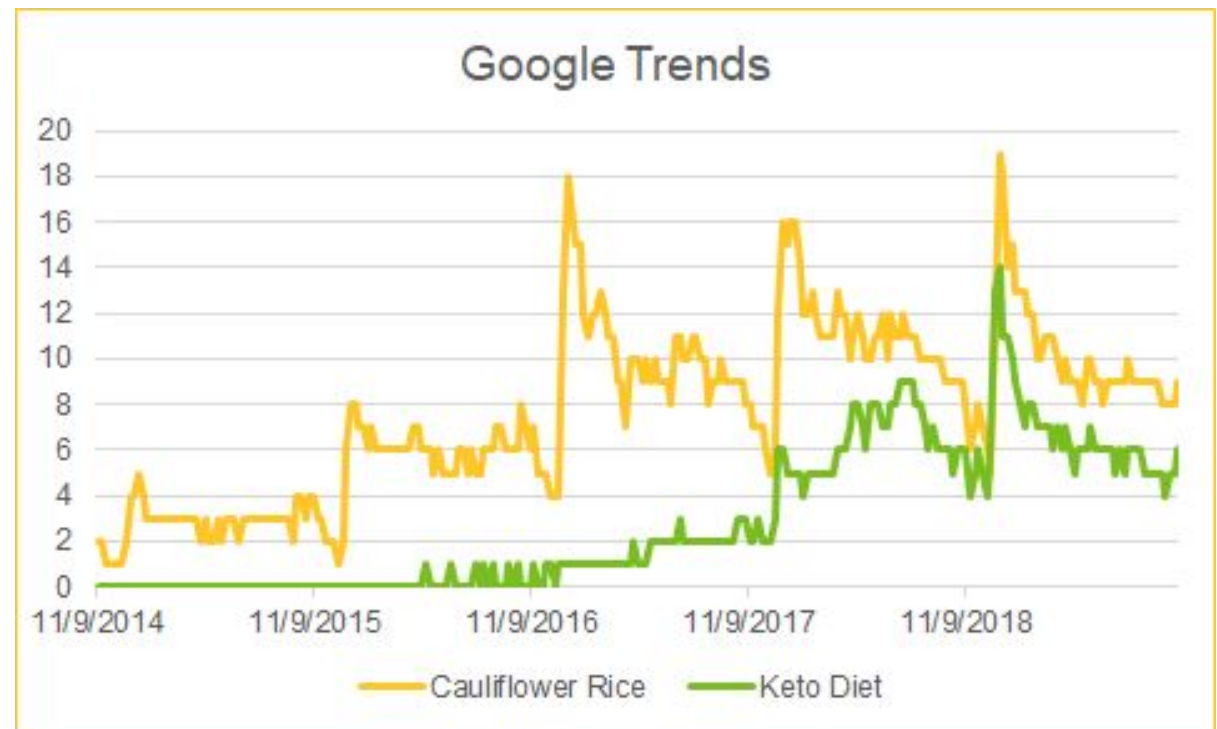

Source: USDA

Source: FAS

Opportunity Discovery: Cauliflower

- Can observe an increase of interest over the years.
- Is the interest of the product caused by another event?
- Will this increase of interest result in a negative or positive effect on long-term prices and demand?
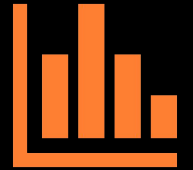
Opportunity Discovery: Cauliflower

- Using news articles we identify that people's increase of interest on cauliflower is for a "good" reason and may be linked to the rise of interest of the keto diet.

Carbs in Cauliflower: Is Cauliflower Keto-Friendly?

Sentiment Analysis: Cauliflower
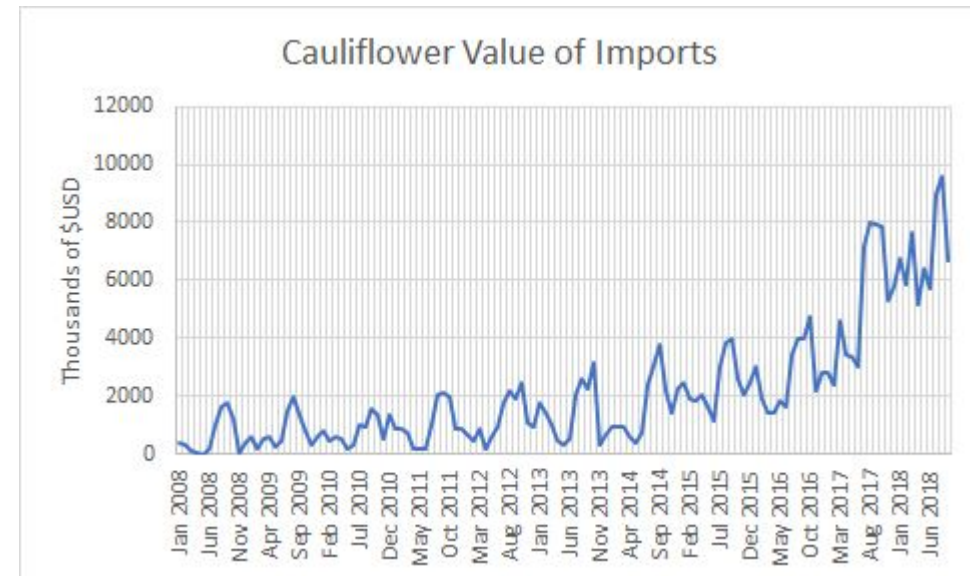
Score Sum = **34**
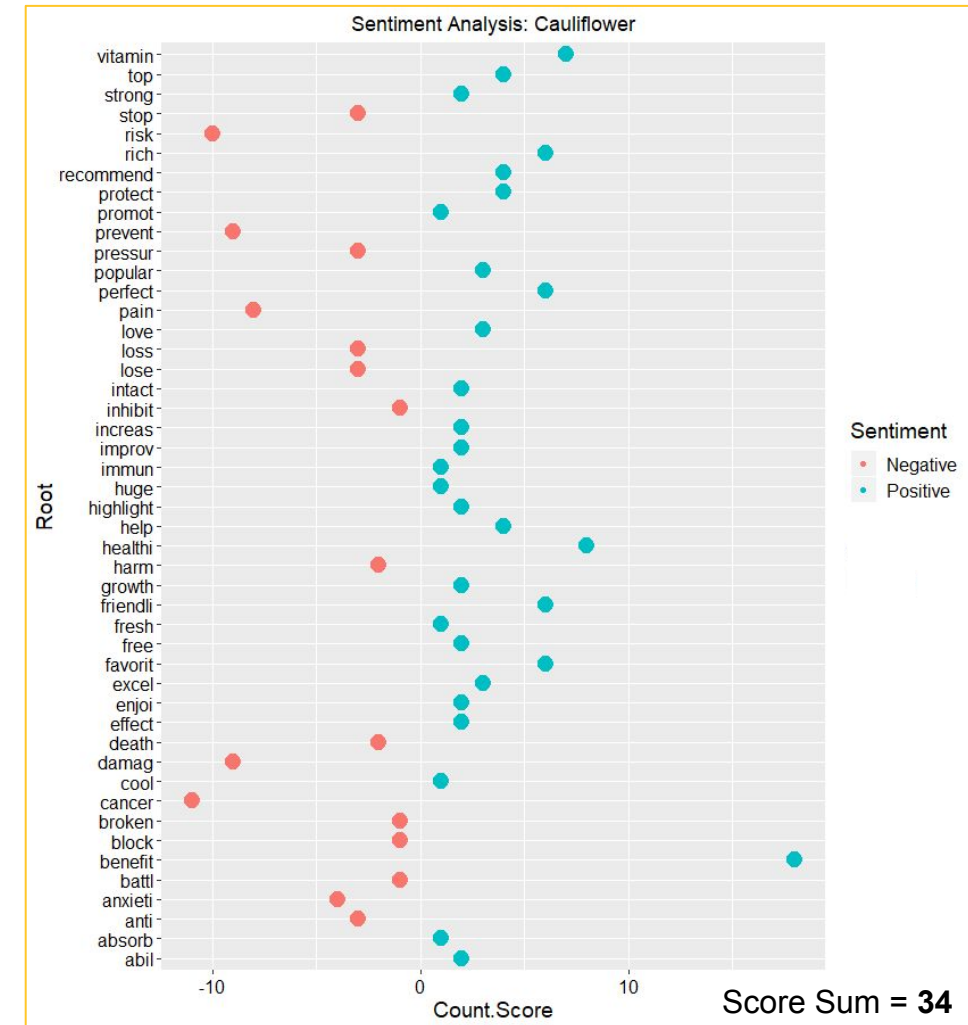
Opportunity Discovery: Cauliflower

- Yearly increase of interest caused an increase of imports.

- Can we quantify the <u>long-term</u> interest of a product and predict its impact on <u>long-term</u> future demand and prices?
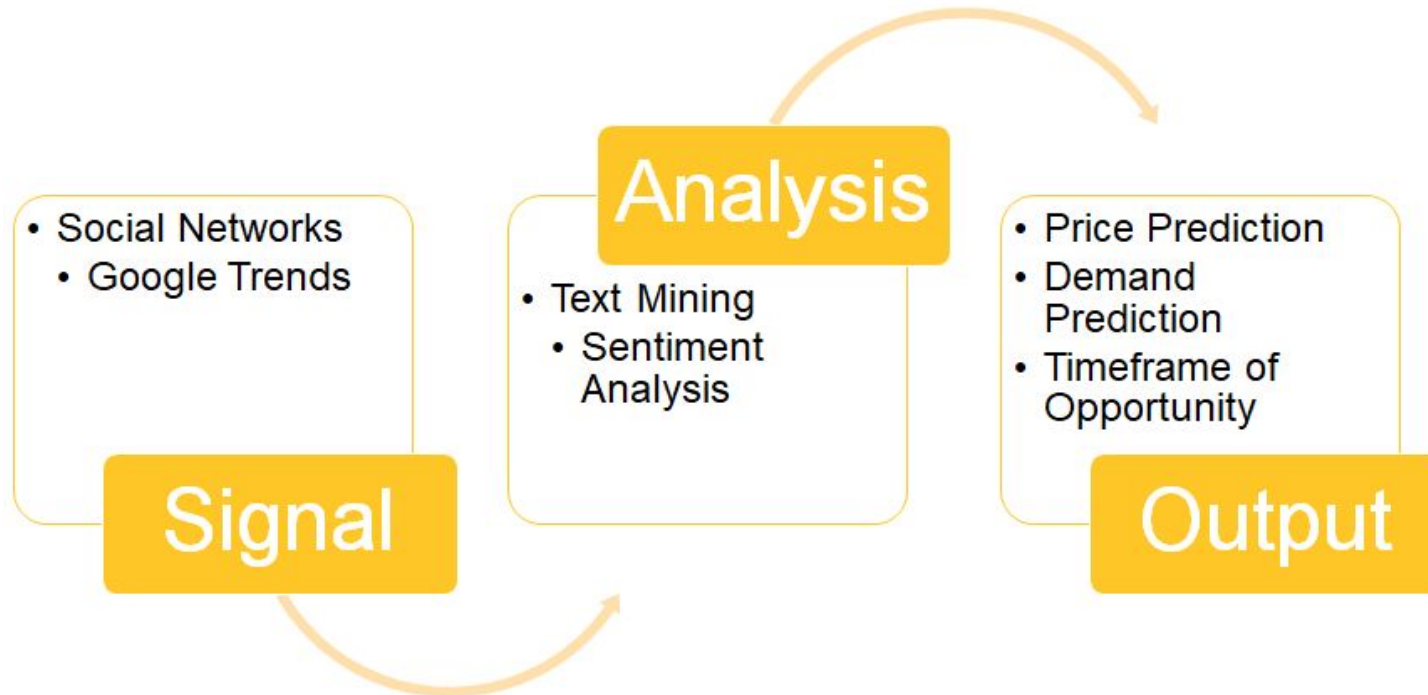

Cauliflower Market Price

Source: USDA

Cauliflower Value of Imports
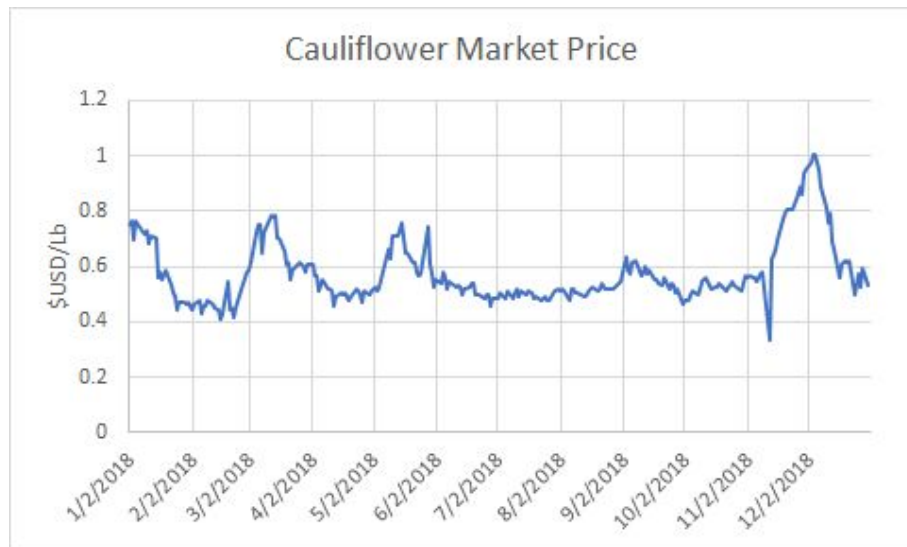
Source: FAS

Conclusions

The use of data analytics can aid in the improvement of the agricultural supply chain and bring knowledge of new opportunities for growers, logistic agents and other participants of the chain, giving them a competitive advantage.

Sponsors

Students

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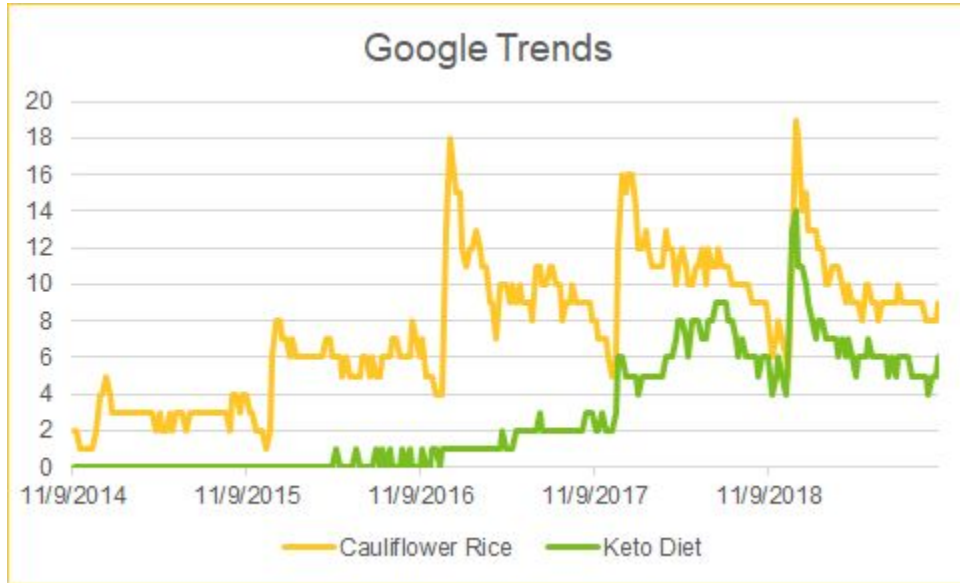Hector Flores
J. Rene Villalobos (renev@asu.edu)
Xaimarie Hernández Cruz (xhernan5@asu.edu

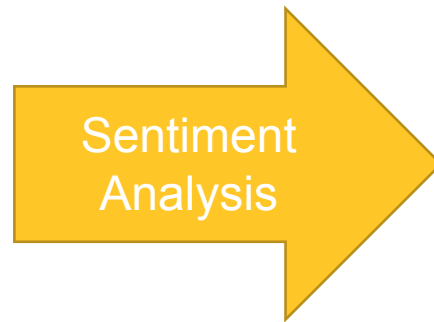International Logistics and Productivity Improvement Laboratory (http://ilpil.asu.edu/)
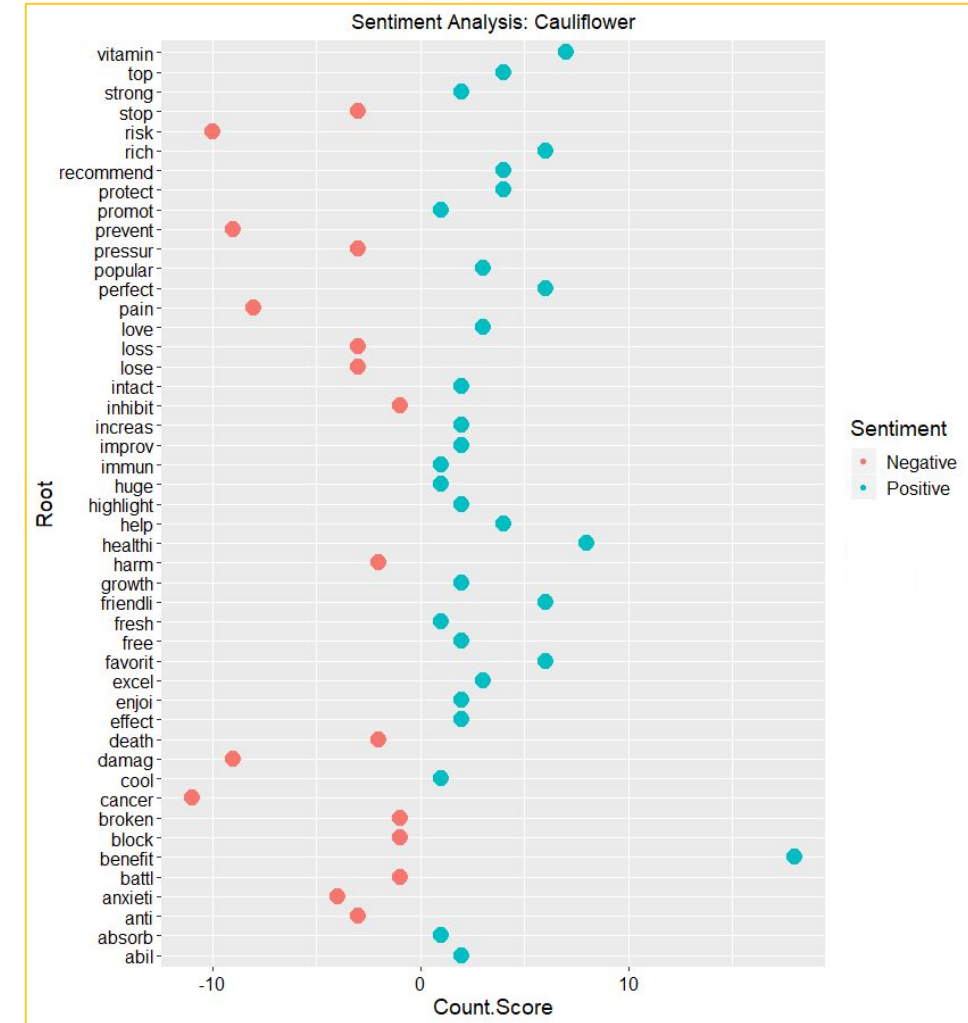School of Computing, Informatics and Decision Systems Engineering

Opportunity Discovery: Cauliflower

Google Trends

Sentiment Analysis

Carbs in Cauliflower: Is Cauliflower Keto-Friendly?

Score Sum = 34

Sentiment Analysis: Cauliflower

Opportunity Discovery: Celery

Google Trends

celery: (United States) celery juice: (United States)

Sentiment Analysis
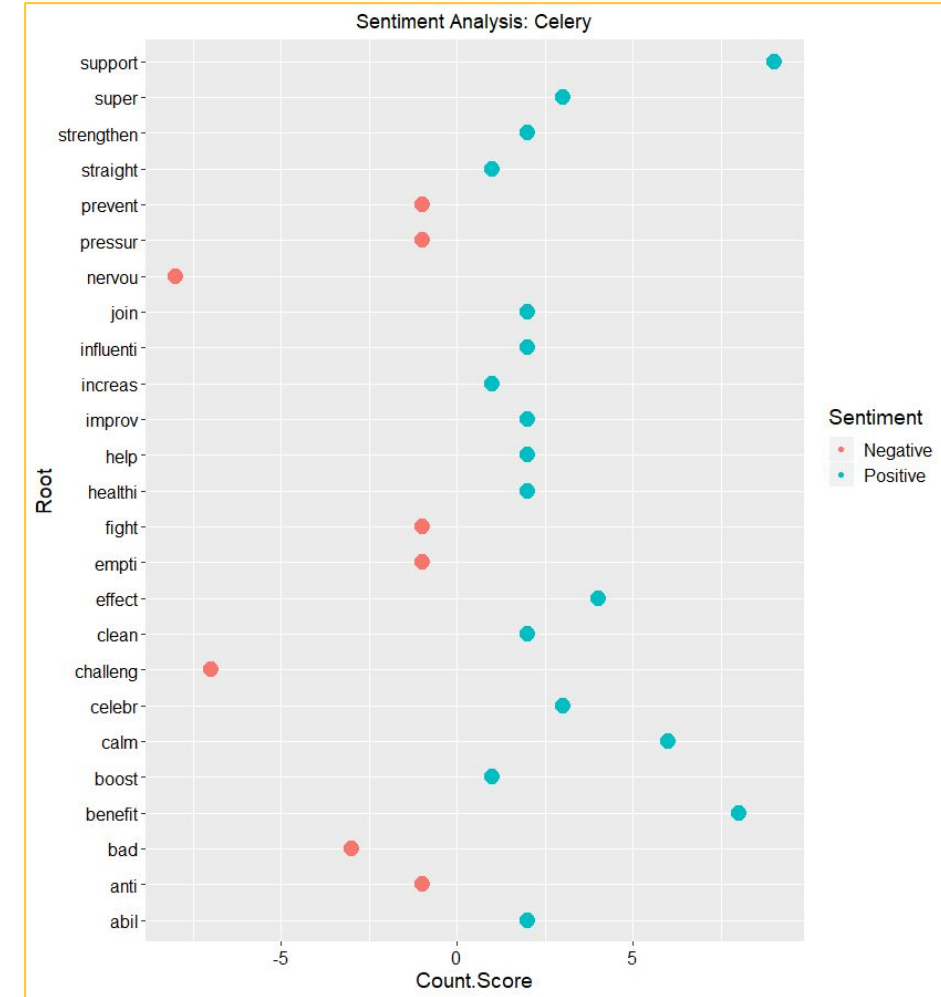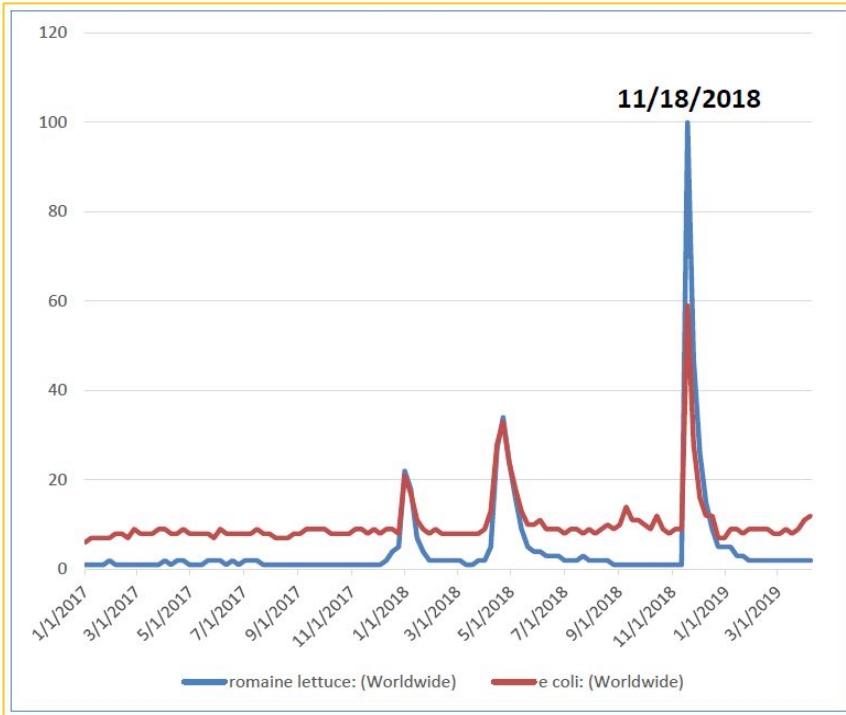
TAKE THE CELERY JUICE CHALLENGE FOR THE SIMPLEST DETOX EVER

Score Sum = **29**

Sentiment Analysis: Celery

Market Reaction: Romaine Lettuce

Sentiment Analysis

Score Sum = **-21**
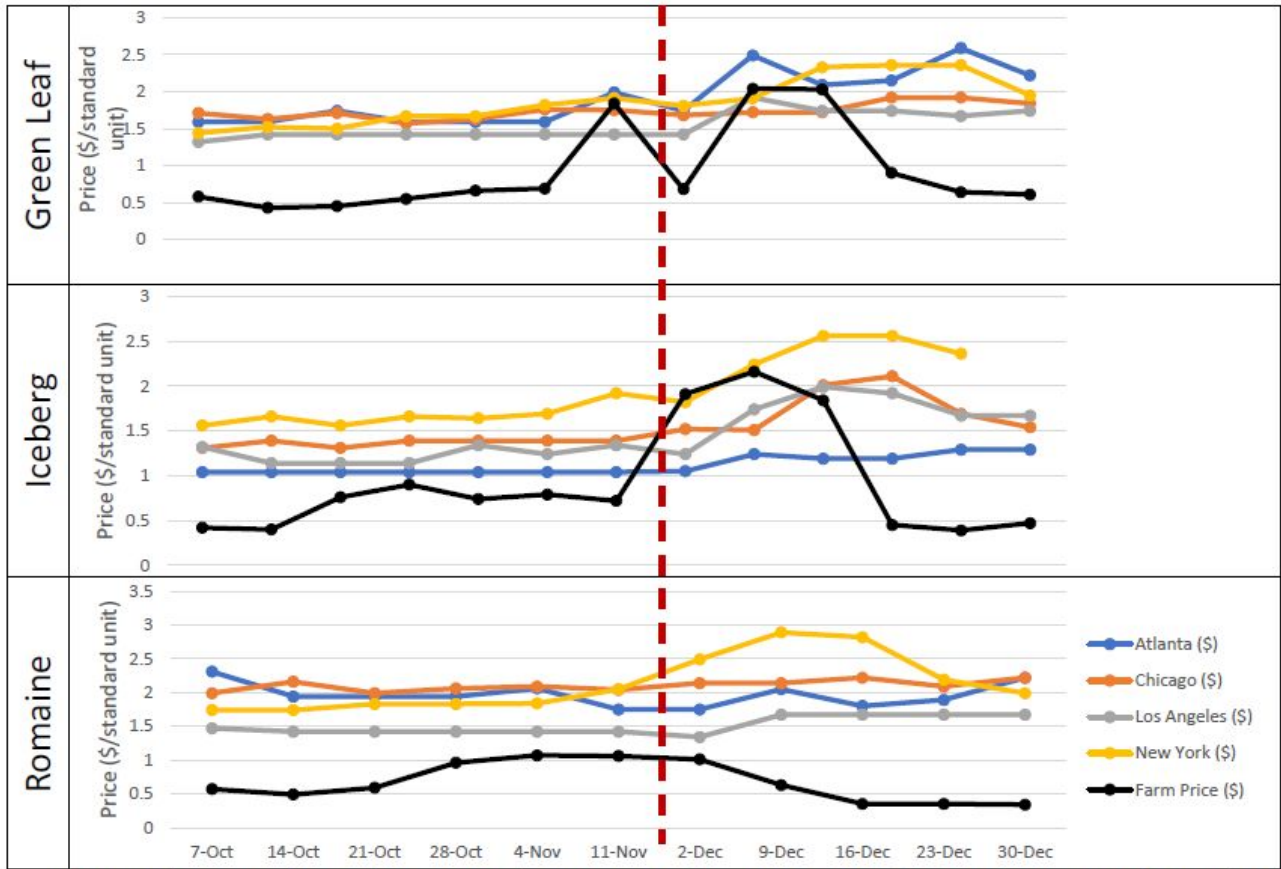
FDA Discloses New E. Coli Romaine Outbreak After It Ends
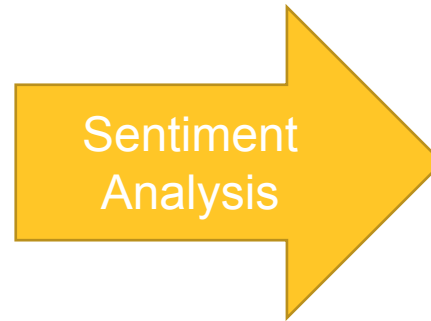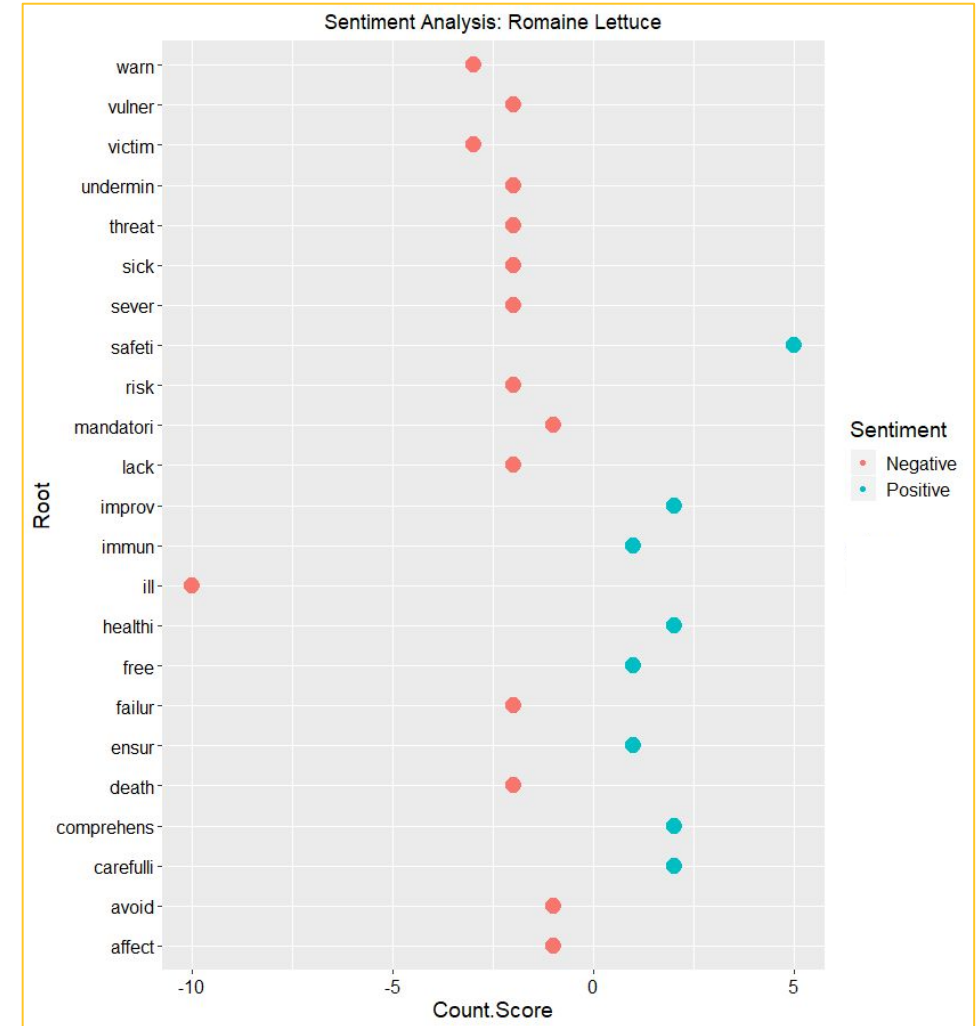
Market Reaction: Romaine Lettuce

Source: Product Price Index. Based on USDA Market News Reports for Farm Gate Prices & U.S. Marketing Services for Retail Prices

Components of Market Intelligence

Data Gathering

USDA

Google Trends

Events / News

Social Media

Analytics

Text Mining

Sentiment Analysis

Price Prediction

Demand Estimation

Correlation Analysis

Opportunity Evaluation

Planification Tools

Agents coordination

Profitability/ Risk Assessment

Feasibility Analysis

Why is Market Intelligence Important?

- Aids in demand estimation, commodity price prediction, and opportunity identification.

- Isolates performance gaps in relation to the competition and reduces the level of risks in decision-making.

- Growers can decide to which market they should send their produce to maximize returns.

Project Vision

Emergence of **agile** supply chains for FFV based on the proper utilization of **market intelligence**, **information technology**, **negotiation**, **coordination** and **planning decision support tools** encapsulated in an integrated environment for **technology-enabled, rapid-response supply chains.**
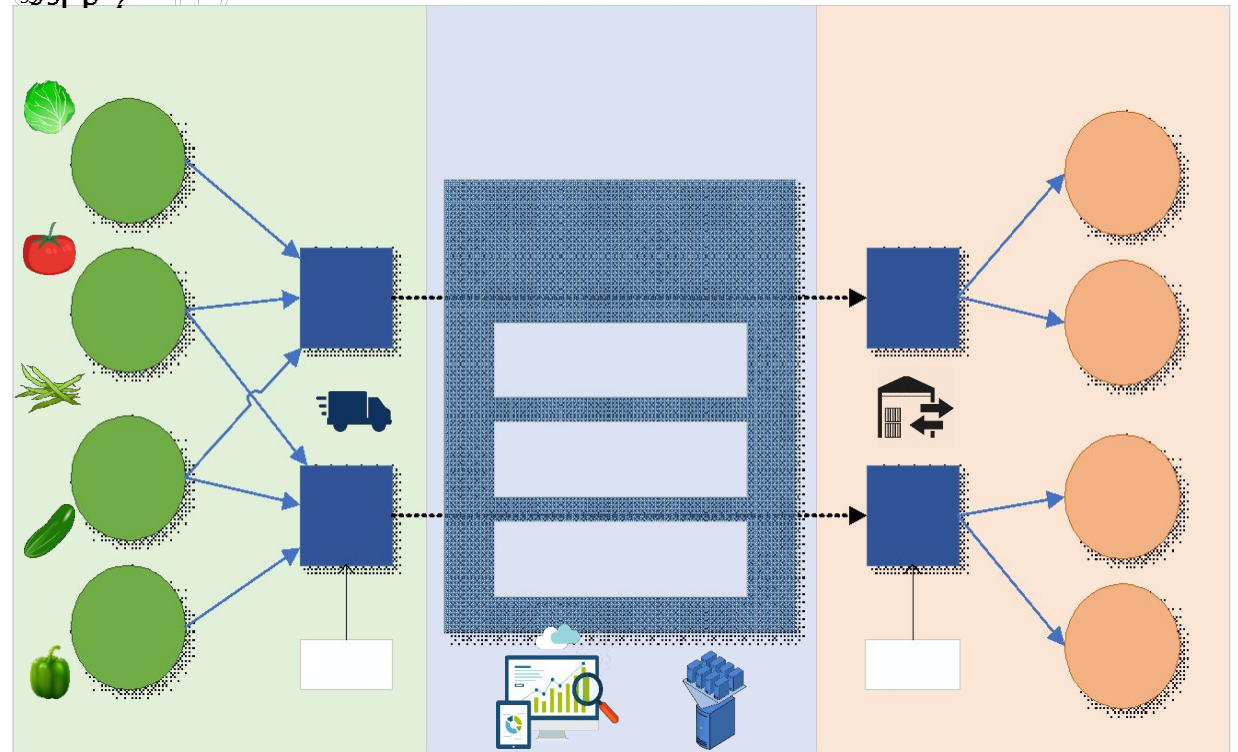
Disruptive Technologies & Strategies

E-commerce and pick-up of orders (almost every grocery store)

Sharing economies (uber eats, uber freight)

Smart Appliances (order placing refrigerators)

Real time information (POS, social networks)

Virtual Economy (Amazon)

E-commerce and direct delivery of orders (Amazon, Instacart)

Sensors (harvest, traceability, inventory level, etc.)