

Berries market prices and volumes decision making tool

Demo presentation 06/08/2020

Summary



- Project objectives and scope



- Current situation (AS IS)



- Proposal (TO BE)



- Demo



- Proposed next steps

Project objectives and scope



Objectives

- **Single source of price market data** and integrated in Planasa's BI, taking advantage of its benefits (fast, scalable, embeddable with internal data)
- Powerful market tool providing **historical and predictive analysis**, to help price decision making and campaign planning
- Homogenize data obtaining a **common consolidated view**, helping comparison analysis across markets and products
- **Automatic update** of information, reducing manual work and increasing data reliability

Scope

Prices and volume market data for all Planasa Group geographies and three fresh produce berries (strawberry, raspberry and blueberry)

Current situation (AS IS)



1

Price and volume data is **manually taken from different data sources and people** across Planasa (EMEA and Americas) to make different analysis

2

Market prices and volumes information is distributed in different repositories, not public and shared for all stakeholders

3

Predictive analysis are not made (at least taking advantage from current systems)

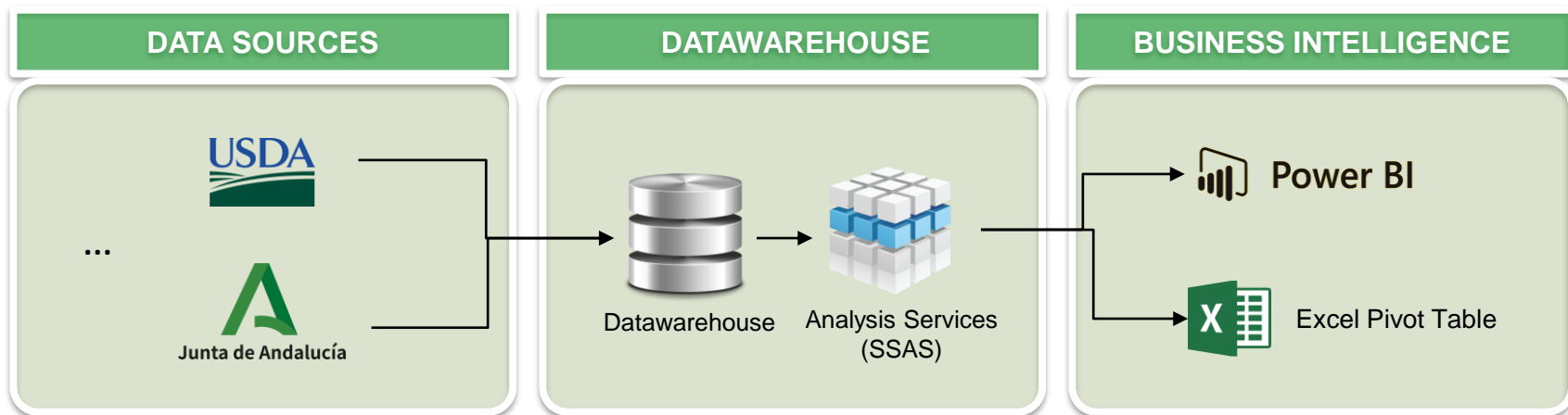
Mexico price database sample

CULTIVO	ZONA DE PRODUCCIÓN	TIPO DE MANEJO	TIPO DE EMPAQUE	Wk 46	Wk 47	Wk 48	Wk 49	Wk 50	Wk 51	Wk 52	Wk 01	Wk 02
Fresa	Zona Norte: San Quintín	convencional	Por Kg									\$ 2.17
			Caja de 4 kg									\$ 14.35
		Emp. orgánico	Por Kg									\$ 3.59
	CRUCES Texas	CONVENCIONAL	1 kg									
		ORGANICO	Caja de 4kg									
	CRUCES Otay Mesa	CONVENCIONAL	Caja de 4kg									
		ORGANICO	Caja de 4kg									
	AGRONOMETRICS	CONVENCIONAL	Caja de 4kg	\$ 13.00	\$ 15.00	\$ 15.86	\$ 19.00	\$ 25.60	\$ 27.80	\$ 21.40	\$ 17.67	\$ 10.98
	Retorno liquidado 2018/19	Freshkampo	Caja de 4kg	\$ 11.08	\$ 14.78	\$ 16.32	\$ 18.81	\$ 21.11			\$ 9.15	\$ 9.19
	Retorno liquidado 2019/2020	Freshkampo	Caja de 4kg								\$ 12.77	\$ 12.23
Frambuesa	Zona Centro: Mich., Gto., y Jalisco	Empaque convencional	Caja de 2 kg	\$ 9.82	\$ 7.98	\$ 8.73	\$ 8.60	\$ 9.25	\$ 7.60	\$ 8.32	\$ 7.56	\$ 7.42
			Por Kg	\$ 4.91	\$ 3.99	\$ 4.36	\$ 4.30	\$ 4.63	\$ 3.80	\$ 4.16	\$ 3.78	\$ 3.71
		Empaque orgánico	Caja de 2 Kg	\$ 14.01	\$ 15.47	\$ 14.17	\$ 15.67	\$ 13.39	\$ 13.46	\$ 13.62	\$ 13.62	\$ 13.26
			Por Kg	\$ 7.00	\$ 7.74	\$ 7.08	\$ 7.84	\$ 6.70	\$ 6.73	\$ 6.81	\$ 6.83	
		1 kg		\$ 3.50	\$ 3.87	\$ 3.54	\$ 3.92	\$ 3.35	\$ 3.37	\$ 3.41	\$ 3.31	
		Empaque convencional	Caja de 2 kg	\$ 19.70	\$ 12.56	\$ 11.06	\$ 9.25	\$ 10.77	\$ 12.82	\$ 11.74	\$ 13.15	\$ 8.60
	Zona Norte: San Quintín		Por Kg	\$ 9.85	\$ 6.28	\$ 5.53	\$ 4.62	\$ 5.39	\$ 6.41	\$ 5.87	\$ 6.58	\$ 4.30
		Empaque orgánico	Caja de 2 Kg	\$ 25.73	\$ 21.53	\$ 15.58	\$ 13.71	\$ 15.23	\$ 17.28	\$ 16.23	\$ 17.28	\$ 13.09
			Por Kg	\$ 12.87	\$ 10.77	\$ 7.79	\$ 6.86	\$ 7.61	\$ 8.64	\$ 8.11	\$ 8.64	\$ 6.55
		1 kg									\$ 4.32	\$ 3.27
	CRUCES Az, California y TX	CONVENCIONAL	Caja 2 Kg									
		ORGANICO	Caja 2 Kg									
	AGRONOMETRICS	CONVENCIONAL	Caja 2kg	\$ 11.00	\$ 13.25	\$ 12.40	\$ 10.25	\$ 10.00	\$ 10.00	\$ 10.00	\$ 10.00	\$ 10.00
	Berries Paradise			\$ 8.74	\$ 8.12	\$ 7.39	\$ 6.94	\$ 7.20	\$ 7.71	\$ 7.71	\$ 13.53	\$ 13.68

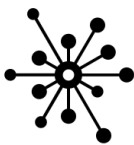
Proposal (TO BE)



- 1 New tool designed with high-level programming languages and web scrapping techniques making **all data ingestion automatic and embeddable with internal sales data**
- 2 Provides a **common language** by applying a series of transformations to homogenize data (weight, locations, category)
- 3 Data stored in a **repository ready for making predictive** analysis so we could predict fresh produce campaign prices




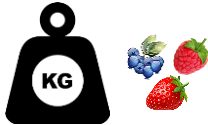



Proposal (TO BE)



Prices at *farm gate and volumes sold for strawberry, raspberry and blueberry in different geographies across US market and Spanish market**

Type	Data Source	Format	Data Kind	Geography	Periodicity	History
External	USDA	URL	Market prices	30 across US	Daily	10 years
External	USDA	URL	Market volumes	200 across US	Daily	20 years
External	Junta de Andalucía	Excel	Market prices	Spain	Weekly	4 years
External	International Blueberry Org.	Excel	Market volumes	11 across EU	Weekly	4 years

			
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* Pricing point, that is, the price of the product available at the farm, excluding any separately billed transport or delivery charge.



Power BI



PRICES

ES raspberries

US raspberries

... and more

CAMPAIGN PRICES

ES blueberries

ES strawberries

VOLUMES

US Mexico All products

US Blueberries Top 2

EU Blueberries Campaign 19-20

EU Blueberries Campaign 18-20

MAP ANALYSIS

Strawberries - Texas

Strawberries – California

Raspberries - California

Blueberries - Washington

Proposed next steps



Extend the BI across Planasa

- Identification of stakeholders of the price tool
- Visual dashboards adjustments to business requirements
- Access implementation and training

Add new external data sources to the BI

- Identification of other data sources for prices and volumes
- Identification of potential data that have impact in prices/volumes: labour costs, weather conditions, global economic KPIs, etc.
- Implement data ingest for all this data

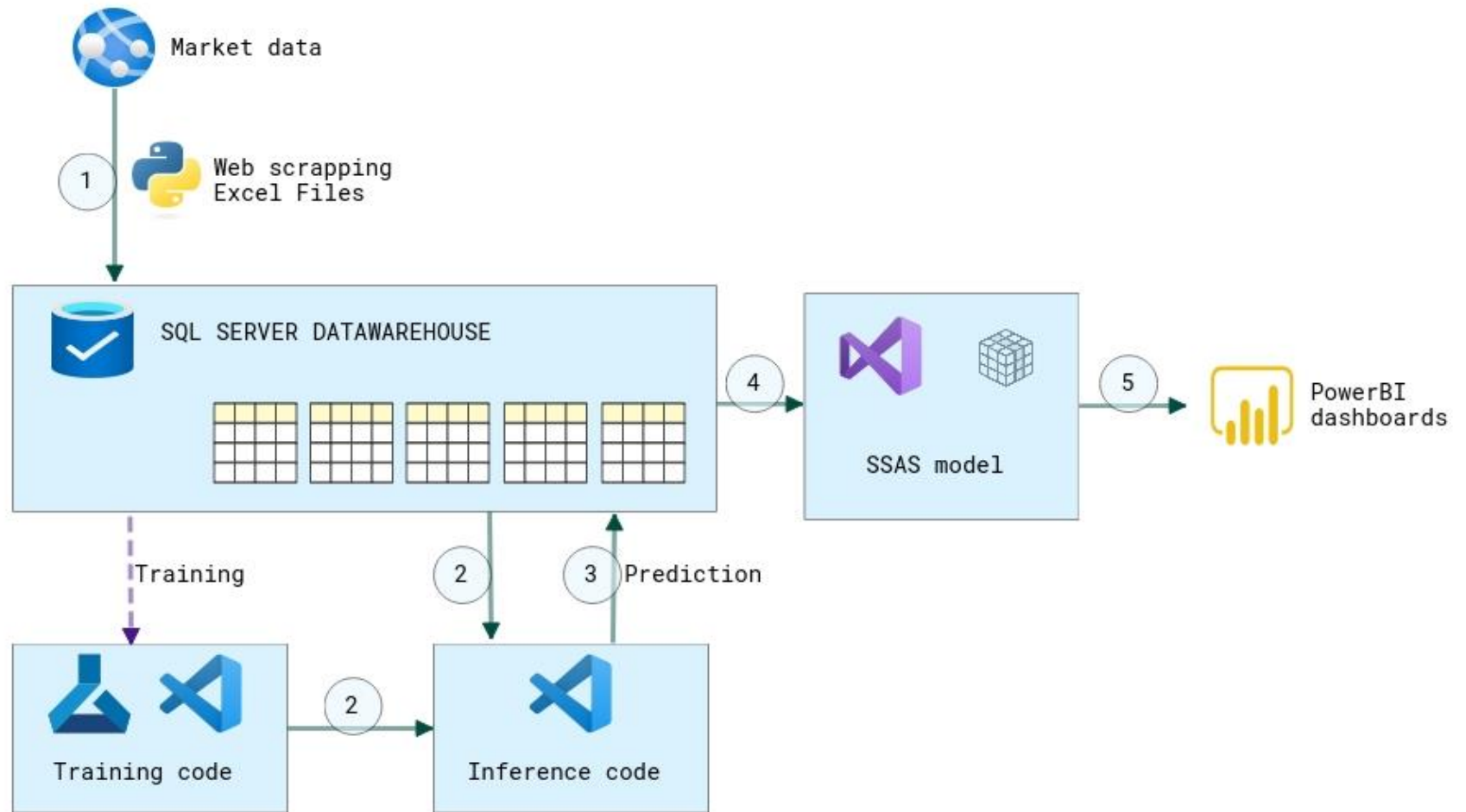
Cross market information with internal data

- Make assumptions of internal nursery prices to adjust them to fresh produce farm gate prices and make a reasonable comparison model
- Implement ETL processes from sales ERP modules to extract volume and prices data

Time series prediction modelling

- Model data to predict market prices of future campaigns
- Clear seasonality trend identified, very appropriate for ARIMA modelling (time series prediction)

Architecture



Inspiration

Mostly professors and colleagues in Kschool but also...

Books

The book of why

Introduction to Machine Learning with Python

ML architecture

<https://app.cloudskew.com/>

<https://towardsdatascience.com/ml-models-prototype-to-production-6bfe47973123>

Time series

Ritvikmath in Youtube

