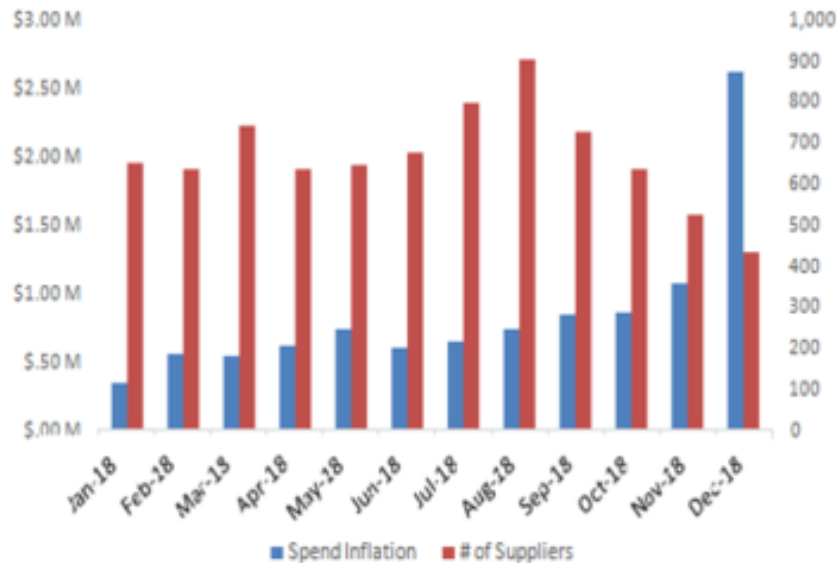


Supply Chain Spend Analytics

Web Based Business Analytics Portal



Spend analytics for food industry

Key Stone offering provides visibility and insights on spend across an organization's supply base. We bring together scalable technology and analytics experts to deliver accurate results that give sourcing and category teams confidence in the spend data, so they can focus on delivering value.

Objectives of Spend Analytics Portal

Business Objective is to increase profitability and ROI of the supply chain and procurement operations by providing deep and actionable insights into Vendor | Item | Rate | Volume

- ☐ **Spend Inflation Analysis**
- ☐ **Spend Inflation Control Tower**
- ☐ **3rd Party Funding Analysis**

- ✓ **Review Period:** The month(s) that will be analyzed
- ✓ **Baseline Period:** The month(s) with which the Review Period will be compared for price inflation; For inflation analysis, *Baseline Period* needs to be of the same duration as *Review Period*
- ✓ **Spend Inflation:**
 1. Any increase in Unit Rate in a month of the Review Period for an item-supplier compared to any month in the Baseline Period
 2. Any new supplier-item combination in a month of the Review Period compared to any month in the Baseline Period
 3. Any increase in total volume for a supplier-item combination in the Review Period compared to the Baseline Period
- ✓ **Red Alert By Category:** An inflation will be flagged as **Red Alert** if:
 - The Unit Rate inflation equals or exceeds the % increase setup in the Red Alert configuration window
 - Spend due to increased volume equals or exceeds the % increase setup in the Red Alert configuration window

Spend Inflation Analysis

The portal provides deep dive views into the supply chain spend data, in order to provide management actionable insights into -

- ☐ **Total Spend Inflation**
- ☐ **Unit Rate Inflation**
- ☐ **New Item / Supplier Inflation**
- ☐ **Increased Volume Inflation**

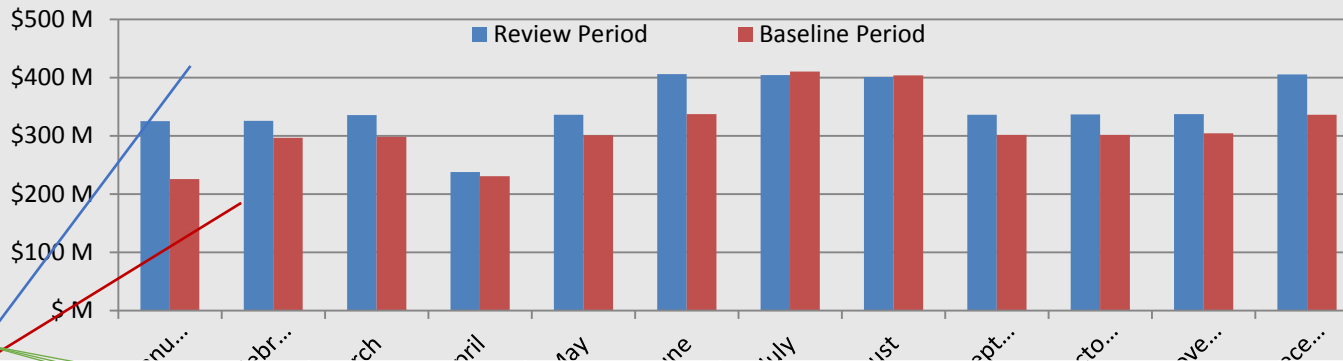
Total Spend Inflation

Reviews: Total Inflation | Total Inflations from Item, Supplier, Volume

You have logged in as John Doe

Sign out

Review Period: Jan – Dec 2018
Baseline Period: Jan – Dec 2017



Review Period Spend (A)	Baseline Period Spend (B)	Spend Inflation (A-B)	Increased Unit rate	Supplier-Item Combination			Increased volume
				# of Suppliers	Net Change From Baseline period	New Supplier-Items in Review Period	
\$ XX,XXX,XXX	\$ XX,XXX,XXX	\$ XX,XXX,XXX	684	5750	100	200	3017

Control Tower

Control Tower

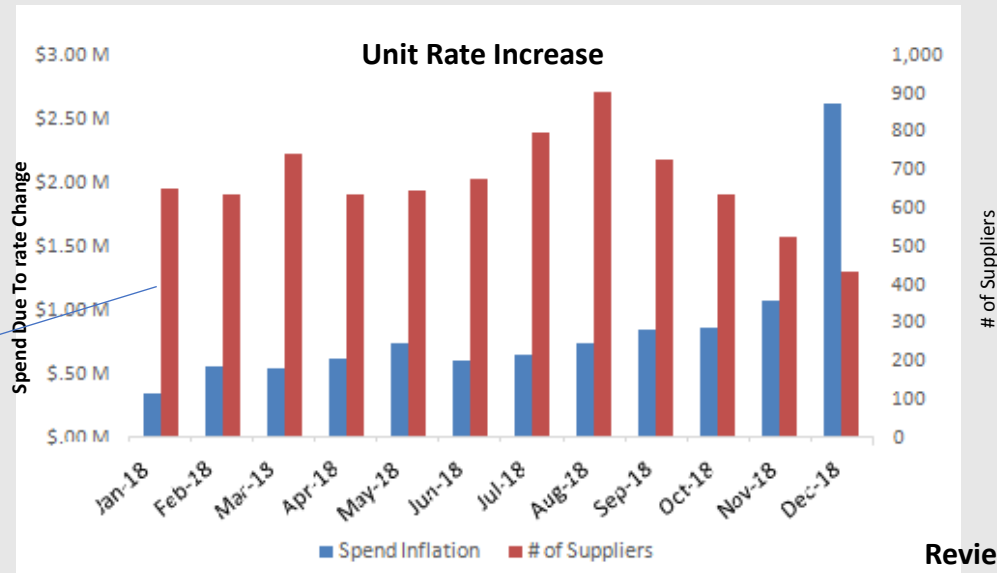
Control Tower

Unit Rate Inflation

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Sign out

Spend Inflation Analytics



Data View Option

Unit Rate Increase
Unit Rate Increase
New Item/Supplier

Click

Review Period: Jan-18 – Dec -18

Baseline Period: Jan-17 – Dec -17

Spending	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18
# of Suppliers	<u>35</u>	<u>46</u>	<u>76</u>	<u>34</u>	<u>56</u>	<u>89</u>	<u>34</u>	<u>67</u>	<u>90</u>	<u>34</u>	<u>65</u>	<u>58</u>
# of Suppliers in Red Alert	<u>14</u>	<u>25</u>	<u>32</u>	<u>15</u>	<u>25</u>	<u>25</u>	<u>11</u>	<u>31</u>	<u>32</u>	<u>9</u>	<u>18</u>	<u>21</u>
Spend Inflation	<u>\$0.35 M</u>	<u>\$0.56 M</u>	<u>\$0.54 M</u>	<u>\$0.62 M</u>	<u>\$0.74 M</u>	<u>\$0.61 M</u>	<u>\$0.66 M</u>	<u>\$0.74 M</u>	<u>\$0.84 M</u>	<u>\$0.86 M</u>	<u>\$1.07 M</u>	<u>\$2.62 M</u>

New Item or Supplier Inflation

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Sign out

Spend Inflation Analytics

New Item/ Supplier

Supplier No.: 2449 Category ID: 24
 AMICK FARMS
 Supplier Name: LLC Category Name: RAW MEAT
 Invoice Approval Status: Unapproved

Jan 2018

#	Invoice No.	Invoice Date	Invoice Line #	Item Number	Item Description	Quantity Received	Quantity Ordered	Unit Rate	Invoice Amount
1			1	893378	893378 PVP Large Slitter Trim	1297	1297	1	\$1,297
2	CAF99111698	01/26/2017	2	804678	804678 PVP BSB Mixed Trim-Plastic Vat	946	946	1	\$946
3			3	800298	800298 PVP BSB BREAST STRIP (00)	1152	1152	1.0882	\$1,254

TOTAL:
\$3,497

Note:

1. Default Sorting: Invoice Line # (1 to n)
2. All columns are sort-able

Spend Inflation Control Tower

The Portal has a *Control Tower* feature

- ✓ Control Tower brings out the individual occurrences of spend inflation
- ✓ User can come to the Control Tower directly from the Home page or by drilling down from Spend Inflation Analytics
- ✓ Control Tower will be typically used to view and act on spend inflation items that are Unaddressed or WIP (Default). However, the user can choose to see Addressed inflation items as well.
- ✓ All inflation items are unaddressed to start with. User can act to make them WIP or Addressed.


Control Tower – Unit Rate Increase

You have logged in as John Doe Sign out

Control Tower – Items Not Yet Addressed

Advanced text Search

Text



Click
Unit Rate Increase

Category Name
 RAW MEAT
 RAW MEAT
 INGREDIENTS
 PACKAGING
 ZOIL
 ZCO2
 ZNITROGEN

Approval Status
 Unapproved
 Upapproved
 Approved

Status
 Unaddressed
 WIP
 Approved

Review Period: Jan-18 – Dec -18

Baseline Period: Jan-17 – Dec -17

Supplier No.	Supplier Name	Invoice No.	Invoice Line #	Invoice Date	Category	Spend Inflation (\$)	Invoice Approval Status	Flagged Date	Assigned To	Status	Action
3294	PERDUE FARMS INC	NRS99111741	2	07/11/2017	RAW MEAT	\$45,500	Approved	08/12/2017	John Doe	WIP	ACT
15912	EQUITY GROUP EUFAULA DIVISION LLC	EUF99111730	4	07/01/2017	INGREDIENTS	\$32,117	Unapproved	08/09/2017	Paul Rainbow	WIP	ACT
3623	EQUITY GROUP GEORGIA DIV LLC	CAF99111698	5	07/09/2017	PACKAGING	\$25,725	Unapproved	08/12/2017	Tim Miner	Unaddressed	ACT
3623	EQUITY GROUP GEORGIA DIV LLC	EUF99111276	3	07/01/2017	ZOIL	\$21,648	Approved	08/01/2017	John Doe	Unaddressed	ACT
3623	EQUITY GROUP GEORGIA DIV LLC	CAF99111721	5	06/05/2017	ZCO2	\$17,099	Approved	07/06/2017	Lisa Achman	Unaddressed	ACT
15912	EQUITY GROUP EUFAULA DIVISION LLC	EUG99111764	2	05/05/2017	ZNITROGEN	\$12,950	Unapproved	07/05/2017	Bob Stuart	WIP	ACT
1412	LINDE LLC	KAG99112004	1	06/07/2017	RAW MEAT	\$7,776	Unapproved	08/07/2017	John Doe	Unaddressed	ACT
20468	EQUITY GROUP KENTUCKY DIV	REF99110882	4	06/05/2017	INGREDIENTS	\$7,619	Unapproved	07/12/2017	Paul Rainbow	WIP	ACT
7010	INTERNATIONAL PAPER	REF99112064	3	07/03/2017	PACKAGING	\$6,971	Unapproved	08/03/2017	Tim Miner	WIP	ACT
7010	INTERNATIONAL PAPER	CAF99111743	5	05/01/2017	ZOIL	\$2,879	Approved	08/01/2017	John Doe	WIP	ACT
7010	INTERNATIONAL PAPER	EUG99111783	3	07/10/2017	ZCO2	\$2,824	Unapproved	08/10/2017	Lisa Achman	WIP	ACT
7010	INTERNATIONAL PAPER	EUF99111282	2	06/11/2017	ZNITROGEN	\$1,723	Unapproved	08/11/2017	Bob Stuart	WIP	ACT
3623	EQUITY GROUP GEORGIA DIV LLC	STF99111736	5	05/05/2017	RAW MEAT	\$1,167	Approved	08/05/2017	Paul Rainbow	WIP	ACT

Control Tower – New Item or Supplier

You have logged in as John Doe
Sign out

Control Tower – Items Not Yet Addressed

Click

New Item/ Suppliers

Category Name
RAW MEAT
RAW MEAT
INGREDIENTS
PACKAGING
ZOIL
ZCO2
ZNITROGEN

Approval Status
Upapproved
Upapproved
Approved

Status
Unaddressed
WIP
Approved

Review Period: Jan-18 – Dec -18

Baseline Period: Jan-17 – Dec -17

<u>Supplier No.</u>	<u>Supplier Name</u>	<u>Invoice No.</u>	<u>Invoice Line #</u>	<u>Invoice Date</u>	<u>Category</u>	<u>Spend Inflation (\$)</u>	<u>Invoice Approval Status</u>	<u>Flagged Date</u>	<u>Status</u>	<u>Action</u>
3294	PERDUE FARMS INC	NRS99111741	2	07/11/2017	RAW MEAT	\$45,500	Approved	08/12/2017	WIP	ACT
15912	EQUITY GROUP EUFAULA DIVISION LLC	EUF99111730	4	07/01/2017	INGREDIENTS	\$32,117	Unapproved	08/09/2017	WIP	ACT
3623	EQUITY GROUP GEORGIA DIV LLC	CAF99111698	5	07/09/2017	PACKAGING	\$25,725	Unapproved	08/12/2017	Unaddressed	ACT
TOTAL: \$103,342										

Note:

- Default Sorting: Invoice Line #(1 to n)
- All columns are sort-able

Control Tower – Volume Inflation

You have logged in as John Doe
Sign out

Control Tower – Items Not Yet Addressed

Increased Volume

Click on row

Advanced text Search

Text

Category Name
 RAW MEAT
 RAW MEAT
 INGREDIENTS
 PACKAGING
 ZOIL
 ZCO2
 ZNITROGEN

Status
 Unaddressed
 WIP
 Approved

Supplier #	Supplier Name	Item	Category	Review Period Volume	Baseline Period Volume	Review Period Spend	Review Period # of Invoices	Inflation		Exception Status	Action
								\$	Vol.		
3294	PERDUE FARMS INC	39	INGREDIENTS	587	247	\$0.35M	57	\$0.12M	2376	Unaddressed	ACT
15912	EQUITY GROUP EUFAULA DIVISION LLC	2397	RAW MEATS	5854	3594	\$1.26M	74	\$0.35M	2536	WIP	ACT
3623	EQUITY GROUP GEORGIA DIV LLC	650160	PACKAGING	964	673	\$0.54M	23	\$0.08M	1538	WIP	ACT
3623	EQUITY GROUP GEORGIA DIV LLC	5793	ZOIL	374	124	\$0.73M	87	\$0.11M	739	Unaddressed	ACT

Note:

- Default Sorting: Invoice Amount (high to low)
- All columns are sort-able

Control Tower – Volume Inflation Detail

You have logged in as John Doe
Sign out

Control Tower – Items Not Yet Addressed

Increased Volume

Spend Inflation Analytics

Status	Approver's Note*
Approved	Increased volume has been approved because of xyz reasons

Approver's ID	Date/Time of Approval
John Doe	08/18/2017 14:34:45

Cancel
Save

Mandatory if status changed to Approved

Status ▼
Unaddressed
WIP
Approved

Control Tower – Other Features

- Auto Generated Email

Auto Email Generation Trigger Points:

1. When Admin creates new user (User or Super User)
2. Control Tower Summary Report
3. When Task is Assigned by Super User

- Control Tower Summary Report

Daily/ Weekly/ Monthly Summary Data*

Inflation Area	Status	
	Unaddressed	WIP
Unit Rate Increase	263	923
New Item/Supplier Combinations	53	135
Increased Volume	134	373

3rd Party Funding Analysis

Suppliers use bill discounting by approved 3rd party financiers - to increase profitability by optimizing discounting / Working Capital cycle - **portal provides insights into**

- ☐ Quantum of 3rd Party Funding
- ☐ Search by Supplier Name & ID & Category ID
- ☐ Obtains detailed drill down up to invoice row item level, including approval status.

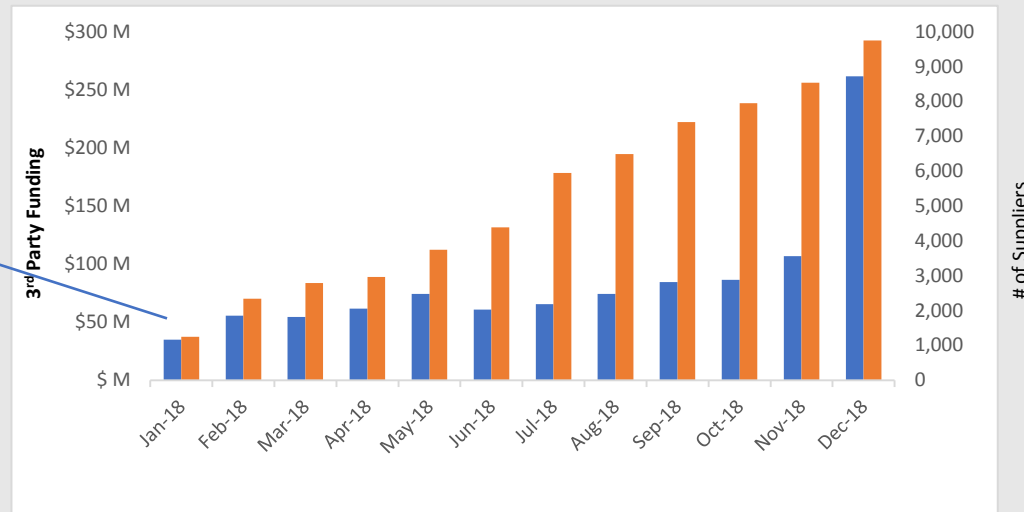
3rd Party Funding Analysis – Screen Flow 1

You have logged in as John Doe

Sign out

3rd Party Funding Analysis

4



Click

	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18
3rd Party Funding	\$35 M	\$56 M	\$54 M	\$62 M	\$74 M	\$61 M	\$66 M	\$74 M	\$84 M	\$86 M	\$107 M	\$262 M
# of Suppliers	1246	2342	2784	2965	3742	4387	5943	6486	7403	7953	8539	9745
Total Spend for the period	\$401 M	\$471 M	\$441 M	\$501 M	\$531 M	\$531 M	\$551 M	\$541 M	\$588 M	\$565 M	\$564 M	\$543 M
3rd Party funding utilization	9%	12%	12%	12%	14%	11%	12%	14%	14%	15%	19%	48%

3rd Party Funding Analysis – Screen Flow 1.1

You have logged in as John Doe

Sign out

3rd Party Funding Analysis

Advanced text Search

Text

Jan 2018

Click

SUPPLIER NUMBER	SUPPLIER NAME	Category	No. of Invoices	Invoice Amount
570	MCCORMICK & COMPANY INC	INGREDIENTS	3	\$45,276
869	SPECIALTY PRODUCTS	PACKAGING	12	\$23,754
2189	JOHN R WHITE COMPANY INC	ZNITROGEN	1	\$18,523
2449	AMICK FARMS LLC	RAW MEAT	6	\$17,648
15912	EQUITY GROUP EUFAULA DIVISION LLC	PACKAGING	3	\$17,648
1185	BUNZL PROCESSOR DIVISION LLC	ZOIL	8	\$12,658
1412	LINDE LLC	ZCO2	12	\$12,658
24	AIR PRODUCTS AND CHEMICALS INC	RAW MEAT	5	\$12,321
2832	AC LEGG INC	ZCO2	10	\$7,648
2823	NEWLY WEDS FOODS INC	ZOIL	8	\$6,753
3294	PERDUE FARMS INC	ZNITROGEN	11	\$6,345
23223	KERRY INGREDIENTS & FLAVOURS	ZNITROGEN	5	\$6,298
2564	GRIFFITH LABORATORIES	PACKAGING	9	\$5,934
28750	OUTSIDE PROCESSING	ZCO2	10	\$5,934
7010	INTERNATIONAL PAPER	INGREDIENTS	8	\$5,439
2458	ARCHER DANIELS MIDLAND CO	INGREDIENTS	14	\$5,392
24131	SOUTHERN COLD STORAGE OF ALABAMA LLC	RAW MEAT	12	\$5,392
4662	PECO FOODS INC	RAW MEAT	4	\$3,456
18165	ALATRADE FOODS SALES & MARKTING	INGREDIENTS	11	\$3,456
3623	EQUITY GROUP GEORGIA DIV LLC	RAW MEAT	6	\$2,341
20468	EQUITY GROUP KENTUCKY DIV	ZOIL	9	\$2,134

Category Name

RAW MEAT

INGREDIENTS

PACKAGING

ZOIL

ZCO2

ZNITROGEN

Showing 1 to 20 of 1246 entries

Previous

1

2

Next

Note:

1. Default Sorting: Invoice Amount (high to low)

2. All columns are sort-able

3rd Party Funding Analysis – Screen Flow 1.2

You have logged in as John Doe

Sign out

3rd Party Funding Analysis

4.2

Click

Supplier No.: 2449

Category ID: 24

Supplier Name: AMICK FARMS LLC

Category Name: RAW MEAT

Jan 2018

#	Invoice No.	Invoice Line #	Invoice Date	Invoice Amount	Invoice Approval Status
1	CAF99111698	3	01/26/2017	\$3,497	Unapproved
2	CAF99111645	5	01/20/2017	\$2,520	Unapproved
3	CAF99111375	2	01/13/2017	\$2,654	Approved
4	CAF99111727	1	01/12/2017	\$3,767	Approved
5	CAF99111396	4	01/10/2017	\$3,739	Unapproved
6	CAF99111653	3	01/04/2017	\$1,471	Unapproved

Note:

1. Default Sorting: Invoice Date (recent to older)

2. All columns are sort-able

3rd Party Funding Analysis – Screen Flow 1.3

You have logged in as John Doe

Sign out

3rd Party Funding Analysis

4.3

Supplier No.: 2449 Category ID: 24
 Supplier Name: AMICK FARMS LLC Category Name: RAW MEAT
 Invoice Approval Status: Unapproved

Jan 2018

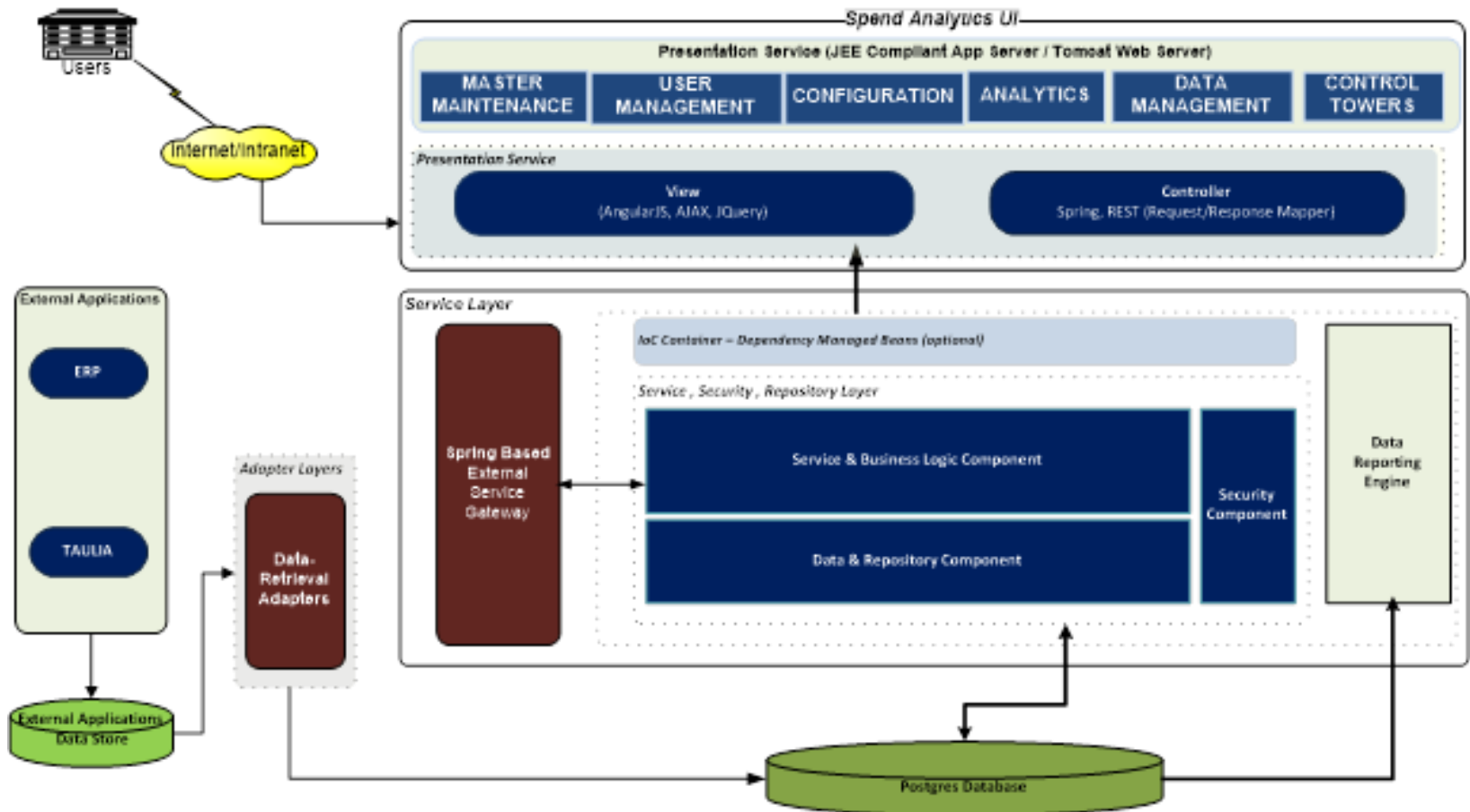
#	Invoice No.	Invoice Date	Invoice Line #	Item Number	Item Description	Quantity Received	Quantity Ordered	Unit Rate	Invoice Amount
1	CAF99111698	01/26/2017	1	893378	893378 PVP Large Slitter Trim	1297	1297	1	\$1,297
2			2	804678	804678 PVP BSB Mixed Trim-Plastic Vat	946	946	1	\$946
3			3	800298	800298 PVP BSB BREAST STRIP (00)	1152	1152	1.0882	\$1,254

TOTAL:
\$3,497

Note:

1. Default Sorting: Invoice Line # (1 to n)
2. All columns are sort-able

Architecture Diagram



Solution Architecture Suggested

Layer	Technology	Remarks
Back-end	PostgreSQL DB	Open source, industry-accepted database platform
Middleware – Application server / runner	Apache Tomcat / JBoss AS	Open source, robust application hosting/implementation platform, widely accepted and used globally
Middleware – execution layer	JEE, Spring, REST	Open source Application framework on top of JEE platform. REST with Spring MVC can be used to build robust, scalable Web services and messaging components.
UI / Front-end interface	Angular JS	Powerful JavaScript Framework from Google. Extends HTML DOM and is licensed under the Apache license version 2.0. Open source licensing.