



# User Guide

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### **1.0 SCAS Overview**

In times of uncertainty and rapid change, global supply chains are facing unprecedented challenges. Effectively navigating these volatile environments using traditional forecasting/ inventory management methods frequently results in inefficiencies throughout the supply chain.

SCAS (Supply Chain Automation Suite) is the world's first Autonomous Requirements Planning (ARP) Engine. Designed to autonomously drive efficiency, resilience, and sustainability across essential supply chains, SCAS is the trusted auto-pilot that supports the captains of It serves as a reliable Artificial Intelligence solution that dynamically tunes the delicate balance between supply chain efficiency and robustness, enabling high velocity decision making.

While SCAS is easily integrated with ERPs, it offers vertical specific capabilities which can be customized to meet customer needs. With Vertical AI and access to data, SCAS is able to deliver transformative business results in verticals that are heavily reliant on global supply chains.

modern supply chains.

### **SCAS Core Modules**

### AP&I (Autonomous Planning & Inventory)

Advanced Artificial Intelligence / Machine Learning based core engine

### **Control Tower**

Sophisticated Visualization Dashboards

SCAS Production	SCAS Distribution	Maintenance & Repair Ops	Oil Supply Planning & Scheduling

#### SCAS Solutions: Application-Specific Implementations of Core Modules

#### **1.1 SCAS Core Modules**

SCAS makes both the Production and Distribution ends of supply chains effortless and efficient. It integrates with all modern ERP systems and uses that deep coupling to train and deploy two select modules. SCAS is composed of two modules, namely Autonomous Procurement & Inventory (AP&I) and Control Tower.

The first of these modules, the Autonomous Planning & Inventory service or AP&I. Replacing existing Material Requirements Planning (MRP) & Distribution Requirements Planning (DRP) systems, AP&I uses AI to inventory management parameters or traditional equation-driven inventory optimization.

The second module, the Control Tower, is a complete supply chain visualizer that maps and tracks inventory movement at all stages of complex multi-location supply chains. It also serves as a complement to the AP&I by visualizing the purchase and manufacturing order suggestions of the AI suite in context of previous order values, highlighting any significant deviations from historic trends so that human operators can quickly scan

autonomously generate replenishment orders with no need for separately generated forecasts, traditional

and grasp the highlights of output of the AP&I.

### **1.2 SCAS Solutions**

With vertical-specific AI capabilities and universal integrations, SCAS autonomously drives operational decisions across different types of supply chain., SCAS builds on its core differentiated capabilities to reimagine supply chain management across a wide range of verticals.

The four SCAS Solutions are:

- 1/ SCAS Distribution: Autonomous outbound Distribution supply chains with maximized availability and minimized inventory.
- 2/ SCAS Production: Autonomously driving procurement, production and cross-warehouse movements for complex multi-stage manufacturing supply chains.
- **3/ SCAS MRO (Maintenance, Repair & Overhaul):** Highly reliable MRO Supply Chains with substantially minimized inventory and enhanced ability to handle unexpected failures or breakdowns.
- 4/ SCAS OSPAS (Oil Supply Planning & Scheduling): Autonomously optimized upstream Oil & Gas operations with minimized waste, enhanced ability to handle demand fluctuations & maximized sustainability.

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### 2.0 SCAS Technology

### 2.1 AP&I at a glance:

AP&I comprises two complementary functions:

# A/ Supply Chain Behavioral Learning (replacing Forecasting):

Building on comprehensive correlation of past supply chain demand, inventory and supply, AP&I derives hundreds of millions of potential supply chain scenarios. By evolving to make continuously improved replenishment decisions, it drives competitive advantages throughout the supply chain. Once applied, AP&I demonstrates tangible ROI across three primary dimensions:

**Bottom Line Improvements (P&L):** Reduce costs related to carrying inventory, supply chain management, cross-warehouse movements, expediting and expirations (whenever applicable).

**Top Line Improvements (P&L):** Minimize stockouts while maximizing availability.

### B/ Autonomous Replenishment (without Equation-Driven Optimization):

Through a continuous Cross Supply Chain Visibility of current near real time supply chain behaviors (that is, granular changes across demand, inventory and supply), AP&I builds its learning capabilities to autonomously generate replenishment orders that maximize efficiency and profitability.

# Cash to Cash Cycle (Balance Sheet): Minimize inventory Days to free tied up capital.

### 2.2 What Inputs does AP&I Need and how does it integrate?

AP&I needs to analyze many transactional tables and fields from an ERP to be able to output meaningful recommendations. Whether the client uses Oracle, SAP or another ERP, Seeloz has created a Data Utility with the ability to easily and efficiently pull data from the client's ERP. AP&I then uses these inputs along with config files generated by the Data Science team to trigger the AP&I machine learning. Below is a subset of the tables needed to run AP&I.

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Туре	MDM Entity	SAP ECC 6.0 Source Tables
<b>Core (Distribution)</b>	Product	MARA, MAKT
	Purchases	EKKO, EKPO, EKET
	Procurements (Inbound Deliveries from Purchases	MSEG, MKPF
	Waste	MSEG, MKPF, T157D
	Supplier	LFA1
	Supply Depot	LFA1
	Consignments / Lots	MSEG, EKET, MCHA
	Orders	VBAK, VBAP, VBRP
	Deliveries	LIKP, LIPS, VBEP
	Returns	MSEG, MKPF, LIKP, T157D, T157E
	Warehouse	TOO1W
	Customer	KNA1
	Site (Customer Branches)	KNA1
	Inventory Levels	MSEG, MARD
	Warehouse Movements	MSEG, MKPF
Manufacturing	Production	MSEG, MKPF, MBEW
	Consumption	MSEG, MKPF, MBEW
	Assembly Components	STKO, STPO

Once the Data Utility has successfully pulled the needed tables, data mapping is implemented via the Master Data Model. The Master Data Model for Seeloz represents a single schema that links all the entities from major ERP schemas (e.g., Oracle E-Business Suite, SAP ECC, Microsoft Dynamics) which are needed for SCAS' various data-driven operations.

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The Data Utility and MDM power the Control Tower dashboard, providing all the visualization data needed as well as the proper structure for report building/generation. By having a comprehensive MDM that feeds into a state of the art Control Tower dashboard, Seeloz makes it easy for customers to see exactly what is going on with their supply chain and make better informed decisions on the rate and volume of their procurements.

Below is a sample master data model for a typical ERP with which SCAS integrates.



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#### 2.3 How does AP&I AI/Machine Learning Work?

AP&I takes the same techniques computers used to beat the world's leading chess grandmaster and applies them to winning the supply chain game! This differs from status quo AI supply chain planning systems that are simply creating computer enhanced statistical models to refine traditional forecasts. Unlike historical forecast based systems, AP&I AI engine plays out millions of possible scenarios of how the supply chain game might develop.

It then picks out moves that maximize future success in the vast majority of these anticipated futures. These moves are then translated into decisions that are seamlessly pushed to the transactional ERP's for human approval/update & immediate execution. This process completely outperforms traditional AI planning tools in real world environments.

#### 2.4 What are the Outputs of AP&I?

The outputs of AP&I are twofold. First, a set of procurement recommendations are pushed to the client's SAP via the Seeloz Data Push Adapter. These recommendations come in the form of Purchase Requisitions that may be edited by the on-site decision maker. Below is an example of the Data Push to a customer using SAP. The material, quantity, delivery date, as well as the desired vendor are displayed for each product to be procured. Simultaneously, a user is able to edit this Purchase Requisition to better fit the best data available.

Below are some snapshots showing SCAS AP&I generated PRs in SAP:

PR - Seeloz		~ 101	182524								PR - Seel	)Z	10182524					
eader											Header		10101914					
2   = =			$ \Sigma \lor \mathbb{Z} \lor   \texttt{F}$	≞∨ <u>↓</u> ∨ ¤∨   i   <u>↑</u> @ (	🖉 🎯 Default Va	lues							7~   Σ ~ 残 ~   骨		@ Default Va	lues		
Status	Item A	I.	Material	Short Text	Quantity Unit	C Delivery Date	Desired Vendor	Requested By	Material Group	Pla	Status		I Material	Short Text	Quantity Unit	C Delivery Date	Desired Vendor	Request
	10		SPCM1-55/55 0852	SPCM1-55/55 0.8 X 52.0 X C	15,359.249 KG	D 06.06.2021	4100171	SEELOZ	Coil	Ray 🌔		10	SPCM1-55/55 0852	SPCM1-55/55.0.8 X 52.0 X C	15 350 2/0 KG	D 06.06.2021	4100171	SEEL 07
	20		SPCM1-55/55 0852	SPCM1-55/55 0.8 X 52.0 X C	15,359.249 KG	D 11.06.2021	4100171	SEELOZ	Coil	Ray		20	SPCM1-55/55-0852	SPCM1-55/55 0.8 X 52.0 X C	15 359 249 KG	D 11.06.2021	4100171	SEELOZ SEELOZ
	30		SPCM1-55/55 0852	SPCM1-55/55 0.8 X 52.0 X C	23,038.873 KG	D 16.06.2021	4100171	SEELOZ	Coil	Ray		30	SPCM1-55/55 0852	SPCM1-55/55 0.8 X 52.0 X C	23.038.873 KG	D 16.06.2021	4100171	SEELOZ
	40		SPCM1-55/55 0852	SPCM1-55/55 0.8 X 52.0 X C	23,038.873 KG	D 21.06.2021	4100171	SEELOZ	Coil	Ray		40	SPCM1-55/55 0852	SPCM1-55/55 0.8 X 52.0 X C	23.038.873 KG	D 21.06.2021	4100171	SEELOZ
	50		WSS-M1A365 GI 0856	WSS-M1A365-A1250G50G GI 0.8X56.0	5,724.042 KG	D 06.06.2021	4100171	SEELOZ	Coil	Ray		50	WSS-M1A365 GI 0856	WSS-M1A365-A1250G50G GI 0.8X56.0	5,724.042 KG	D 06.06.2021	4100171	SEELOZ
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The recommendations are also provided to the customer in excel format alongside the push to the ERP. The AP&I outputs are also accessible through the Control Tower (see section 3.4 and 3.5 of this document for details).

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### 3.0 SCAS Usage Overview

#### **3.1 Control Tower Overview:**

The Control Tower is a one stop solution that allows users to have a comprehensive picture of their supply chain flows at any given time.

It is also the main source of information on the outputs of the Autonomous Planning & Inventory service where supply chain leaders can quickly skim through the outputs in the context of historical trends and future benefit. The Control Tower is based on the robust Microsoft Power BI software system and Seeloz will provide your organization with an agreed number of users that access various levels of the Control Tower based on their clearance levels and credentials.

The system has multiple sections shared across or specialized to each of the SCAS Solutions.

In the following sections, we'll cover the most common sections across the different SCAS Solutions and discuss the usage of each of them.

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### 3.2 Executive Dashboard: (Fig.1)

This section is designed for the leadership team and allows executives to monitor, at a glance, the health of the production supply chain. We have designed it to be meaningful and concise so that the leadership team can stay focused on the bigger picture while flagging issues that might need their attention or intervention.

- a1/ Navigation buttons: used to navigate between the different tabs.
- a2/ Date slicer: used to select the time period for the displayed information.
- a3/ Information cards: displays the total number of warehouses, customers, suppliers, and products for the selected time period.
- a4/ Overview: displays a high-level overview on metrics such as days of inventory, value of orders, average inventory, and total procurement. These are shown as absolute values and as a percentage, compared to the
  - previous year.
- a5/ Actionable Insights: displays metrics that may reveal issues in the supply chain that need attention and resolution, we track flag items like Delays, Lost Sales etc.
- a6/ AP&I Impact: AP&I (Automatic Inventory & Planning) Advantage: Summarizes the business impact of Seeloz SCAS on the overall supply chain by comparing Pre & Post on vital business metrics like Stock-Outs, Inventory levels, Average Procurement etc.



Fig.1: Executive Dashboard

#### 3.3 Control Tower Main Dashboard

These sections on the main dashboard allow the business users to see their data, from four different perspectives (Warehouses, Supplies, Customers and Inventory), at a high level, or drill down to lower levels.

#### 3.31 Warehouse Dashboard: (Fig.2)

This section shows all details on the warehouses, total warehouse resources and their distribution between the warehouses.

- b1/ ProductCode slicer: used to filter the dashboard by ProductCode.
- b2/ WarehouseCode slicer: used to filter the dashboard by WarehouseCode.
- b3/ ProductType slicer: used to filter the dashboard by ProductType.
- b4/ Date slicer: used to select the time period for the displayed information.
- b5/ Navigation buttons: used to navigate between the different tabs.
- b6/ Breakdown of inventory by warehouse.
- b7/ Information cards showing information from all warehouses.
- b8/ Graphs showing inventory values by warehouse.
- b9/ Warehouse geographic locations.
- b10/ Table showing details on each warehouse.



							PHETCHABURI	CHON BUR	NGSAO
Jan 2021	Feb 2021	Mar 2021	Apr 2	2021 May 20	21 Jun 2021		Bingreng	© 2021 Tom Tom, © 202	G 1_Microsoft_Corporation
Warehouses									
Name	ID	Purchase (B)		Procurement (8)	Consumption ( <b>B</b> )	Production (B)	Orders (B)	Inventory (8)	Products
Rayong Plant	24	401	104.94M	103.33M	248.42M	384.80M	393.83M	5,992.42M	1389
Ayuthaya Plant	24	402	20.95M	21.25M	67.31M	121.67M	75.41M	2,101.79M	733
Tetel			125 0014	124 ESM	315 73M	506 47M	469 25M	8 094 21M	2122

Fig.2: Warehouses Dashboard

### 3.32 Suppliers Dashboard: (Fig.3)

This section shows details on the suppliers and the division of procurements between them.

- c1/ SupplierName slicer: used to filter the dashboard by SupplierName.
- c2/ ProcurementID slicer: used to filter the dashboard by ProcurementID.
- c3/ Information cards showing information from all suppliers.
- c4/ Suppliers' geographic locations.
- c5/ Table showing details on each supplier.
- c6/ Table showing details on every procurement.
- c7/ Procurement breakdown by supplier.
- c8/ Number of on-time deliveries (OTD) per vendor.

#### c9/ Procurement lead-times per supplier.

ProductCode Search Q	SupplierName Search Q		S	Suppliers Da ら(一	ashboa >	rd	C2 ProcurementID Search Q Date 1/1/2021 6/30/2021
	# of Suppliers	# of Products 900	# of Procurer 31	nents Pr	oc Value (B) 5T		
Suppliers							Bing © 2021 TomTom, © 2021 Microsoft Corporation
ID Supp	plyDepotID Name		WarehouseID Purc	hasedPrice Purchase Quantity	e Purc /	hasedValue 🔒	Procurement Breakdown by Supplier
4100411	4100411 Standard Rubbe	er Co.,Ltd., Head Office	2401	2.47	100K	247.00K	3M Thailand Lim 0.87%
4100411	4100411 Standard Rubbe	er Co.,Ltd., Head Office	2401	2.47	95K	234.65K	Trakhankij In 0.87% — Tine Compo 0.87%
4100324	4100324 Gacner Co.,Ltd.,	Head Office	2401	0.00	92K	0.18K	Thai Parker 0.87% — Honda Trad 0.87%
4100095	4100095 Yonei & Compa	ny Limited	2401	0.00	90K	0.21K	Thai Auto 0.87%
4100411	4100411 Standard Rubbe	er Co.,Ltd., Head Office	2401	2.47	85K	209.95K	Sumisno 0.87% KONY SUN 0.87%
4100324	4100324 Gacner Co.,Ltd.,	Head Office	2401	0.00	84K	0.16K	S.P.Y. Engineering Ltd. Part
4100411	4100411 Standard Rubbe	er Co.,Ltd., Head Office	2401	2.47	84K	207.48K 🎽	0.87% NINE INFINIT 0.87%
MOOFFF			2404	0.00	0.0%	24 22%	
Procurements							Vendor on-time delivery
ID	SupplierName	ProductCode	Proc Date	Delivery Date	Quantity	Cost (B) 🔨	CustomerName 🗢 AGC Aut 🗢 Asian Ho 👄 Asian Par 🔍 Auto Alli 🕨
2019- 5001163828- 1-1	Standard Rubber Co.,Ltd., Head Office	RM-BHS2-509H9	Monday, February 04, 2019	Monday, February 04, 2019	100K	24700M	0.2M 0.0M
2019- 5001197835- 1-1	Standard Rubber Co.,Ltd., Head Office	RM-BHS2-509H9	Monday, July 01, 2019	Monday, July 01, 2019	95K	22292M	Procurement Lead Times
2019- 5001192055- 1-1	Standard Rubber Co.,Ltd., Head Office	RM-BHS2-509H9	Thursday, June 06, 2019	Thursday, June 06, 2019	85K	17846M	SupplierName SM Thail A KEN RI APPC (Thail A-PRECIS 2M
Total					134639K	4547826M	

Fig.3: Suppliers Dashboard

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### 3.33 Customers Dashboard: (Fig.4)

This section shows details on their customers and the customers' orders across the entire foot-print of the customer's supply chain that is in scope for SCAS - Production.

- d1/ OrderID slicer: used to filter the dashboard by OrderID.
- d2/ Information cards showing information from all customers.
- d3/ Customers' geographic locations.
- d4/ Table showing details on each customer.
- d5/ Table showing details on each order.
- d6/ Order breakdown by customer.
- d7/ Customer on-time deliveries (OTD).

ProductCode   Search   Search     Search     Search     Search	C	ustomers Dashboa ら (ー)	ard Search	Date 1/1/2021 6/30/2021
d2 # of Customers # of Produ 35 742	ects # of Orders 727.96K	Total Order Value (\$) 13.38bn	Pacific At Ocean	tlantic Ocean AFRICA
Customers CustomerID CustomerName	Order Quantity Order Value (8)	# of Orders Products Sold	SOUTH Bing	AMERICA Indian AUSTRALIA Ocean © 2021 TomTom, © 2021 Microsoft Corporation
4100000 Auto Alliance (Thailand) Co.,Ltd. 4100001 Ford Operation (Thailand) Co.,Ltd. 4100002 Thai Summit Eastern Seaboard 4100003 Mitsubishi Motors (Thailand) 4100004 MMTh Engine (Thailand) Co.,Ltd. 4100005 Mitsubishi Motors (Thailand) 4100006 Isuzu Motors Co., (Thailand) Ltd.	49159K 1,736.33M 5K 0.33M 282K 6.90M 7291K 370.59M 193K 103.94M 569K 33.89M 3947K 403.60M	884       60         20       22         35       11         513       70         93       13         412       115         491       32	OrderAmount Breakdown by C Ford Motor Com 2.52 AGC Automotive (Thailand) Co.,Lt 6.03% Mitsubishi Motors (Thailand) 10.5%	Customer Auto Alliance (Thailand) Co.,Ltd. 34.5% Honda Automobile (Thailand)Co.,Ltd.
d5 Orders OrderID Customer	OrderDate Produ	ictCode ProductName	UnitPrice (B) C	ustomer OTD IstomerN • AGC Automotiv • Asian Honda •
4110034914-10-1 Auto Alliance (Thailand) Co.,Ltd 4110034914-10-1 Auto Alliance (Thailand) Co.,Ltd	<ul> <li>Sunday, January 04, 2015 AB39-</li> </ul>	-2121469-AC_ CHAN FR DR WDC -2121469-BC_ CHAN FR DR WDC -2621469-BC_ CHAN FR DR WDC -2121468-AC_ CHAN FR DR WDC -2121468-BC_ CHAN FR DR WDC	GL, LH 37.20 GL, LH 37.20 GL, LH 37.20 GL, RH 37.20 GL, RH 37.20 GL, RH 37.20 CL RH 37.20	ustomer Delivery Lead Times
4110034914-10-1 Auto Alliance (Thailand) Co.,Ltd 4110034914-10-1 Auto Alliance (Thailand) Co.,Ltd	<ul> <li>Sunday, January 04, 2015 AB39-</li> </ul>	-2621468-BC_ CHAN FR DR WDC -2121469-CC_ CHAN FRT DR WD -2121469-DC_ CHAN FRT DR WD -2121469-EC_ CHAN FRT DR WD -2121469-FC_ CHAN FRT DR WD	GL, KH     37.20       O GL, LH     37.20	astomerN AGC Automotiv Asian Honda 2M



#### Fig.4: Customers Dashboard

### 3.34 Inventory Dashboard: (Fig.5)

This section shows historic inventory details with the option to drill down on a product-level.

- e1/ General information cards related to inventory.
- e2/ Graph showing value metrics for inventory value analysis.
- e3/ Table showing inventory quantity changes over time.
- e4/ Filter that allows dashboard filtering using one of the top products.

ProductCode	WarehouseCode		ProductType	Date
Search Q 🖉	Search Q 🖉	Inventory Dashboard	Search Q	1/1/2021 6/30/2021



Fig.5: Inventory Dashboard

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#### 3.4 AP&I Dashboard

When Seeloz first deploys the AP&I for a client, we run a comprehensive Diagnostic Assessment of the existing supply chain. This allows the AP&I to highlight the opportunities and potential benefits that the customer can expect once the complete APR solution is deployed.

After the AP&I is fully integrated with the customer systems, we offer a comprehensive view on the recommendations that the APR makes. The tabs allow the client to see AP&I's predicted output, compare it with historical data, as well as procurement recommendations and predicted outcomes of following them.

#### 3.41 Procurement Analysis: (Fig.7)

On a full-scale AP&I deployment after the diagnostic phase we have the first screen that provides a comprehensive analysis of AP&I's procurement recommendations and qualifies it in historical context. The first tab shows details of AI-generated procurement data.

- g1/ Information cards summary of AP&I procurements.
- g2/ Graph comparing historical and AI-predicted data for procurement quantities.
- g3/ Procurement cost breakdown by warehouse.
- g4/ Table showing procurement details in terms of quantity metrics.



Total			7562364	29269614	-34013636	126863	-126863	10760928
Monday Fabruary 25 2010	72152 TI AA 001P	Diacos		60	270	2200		
Wednesday, February 06, 2019	73162-TLAA-001B	Pieces		3398		2280	-2280	
Tuesday, February 05, 2019	73152-TLAA-001B	Pieces		1073	-240	2280	-2280	
Thursday, January 24, 2019	73152-TLAA-001B	Pieces		2856	-480	2280	-2280	
Thursday, April 25, 2019	73152-TLAA-001B	Pieces			-300	2850	-2850	
Thursday, March 21, 2019	73162-TLAA-001B	Pieces		1128	-300	2850	-2850	
Tuesday, March 12, 2019	73162-TLAA-001B	Pieces				2855	-2855	
Monday, January 21, 2019	73162-TLAA-001B	Pieces			-180	3420	-3420	
Tuesday, January 08, 2019	73152-TLAA-001B	Pieces		2703	-540	3420	-3420	
Monday, February 25, 2019	73162-TLAA-001B	Pieces			-270	4560	-4560	
mulsuay, April 23, 2013	JOIGE TENT COTE	Theses						

Fig.7: AP&I - Procurement Analysis Tab

#### 3.42 Recommendations Context & Impact: (Fig.8)

This section shows AP&I's procurement recommendations (per product) and predicted outcome of selecting said recommendations. We also highlight products where the APR is suggesting a significant deviation from historical average order sizes by using a color scale from green (close to previous averages) to orange (very above or below previous averages).

- h1/ Table showing AP&I recommendations per product. Products are color coded, with highest variance products being orange and products closest to mean being green.
- h2/ Filter that allows dashboard filtering using products of highest variance.
- h3/ Graph comparing historical inventory to predicted inventory, if recommendation is used.
- h4/ Graph comparing historical procurement to predicted inventory, if recommendation is used.



Fig.8: AP&I - Recommendations Tab

#### 3.43 Open Orders - Pending Approval: (Fig.9)

This section shows pending orders (today's and previous) and AP&I's procurement recommendations (per product) and predicted outcome of selecting said recommendations. We also highlight products where the APR is suggesting a significant deviation from historical average order sizes by using a color scale from green (close to previous averages) to orange (very above or below previous averages).

- i1/ Table showing AP&I recommendations per product. Products are color coded, with highest variance products being orange and products closest to mean being green.
- i2/ Filter that allows dashboard filtering using products of highest variance.
- i3/ Table showing today's pending orders, color coded by variance from mean.
- i4/ Table showing previous pending orders, color coded by variance from mean.

ProductCode Search Q <i>I</i>	WarehouseCode		A	AP&I: Open	Orders う ←	- Pending	Approval	Produc	ctType ch Q <i>B</i>	Date 1/1/2019 8/31/2019
Procurement Recomme	endations							Product	Breakdown by	Variance from Mean
ProductCode	ProductType	UOM		SupplierID Ur	nitPrice (8)	Quantity To	talValue (฿)	SPCM1	. 731 RM	RM
RM-GT7116	Raw materials	Meter	-	4100000	45493K	3678K	777755M		PM	
SPCM1-55/55 0852	Raw materials	Kilogra	am	4100171	170118K	5218K	447077M		RM	89
RM-BHS2-509H9	Raw materials	Pieces		4100411	8273K	3343K	445619M	DM NVI	RM-	··· 48 D
RM-PVCEXT EH-356FK	Raw materials	Kilogra	am	4100090	85385K	758K	242973M	KW-NTL	JSC2	
JSC270C 0759	Raw materials	Kilogra	am	4100032	20347K	751K	90918M	DM DV	731	<u> </u>
SP781BQ 06690	Raw materials	Kilogra	am	4100068	29947K	953K	83767M	KIVI-PV	RM	RM 89
					1024930K	134039K	434702014			
OrderID	ProductCode	ProductType	UOM	SupplierID	SupplierName	2	UnitPrice (B)	Quantity	TotalValue (฿)	DeliveryDate
2019-5001163788-1-1	RM-8981 7240-4	Raw materials	Pieces	4100014	Nitto Matex ( Office	Thailand) Co.,Ltd., He	ad 5K	10K	48M	Monday, February 04, 2019
2019-5001163788-2-1	RM-82216/17-4	Raw materials	Pieces	4100014	Nitto Matex ( Office	Thailand) Co.,Ltd., He	ad 4K	7K	29M	Monday, February 04, 2019
2019-5001163788-3-1	RM-82216/17-5	Raw materials	Pieces	4100014	Nitto Matex (	Thailand) Co.,Ltd., He	ad 13K	5K	66M	Monday, February 04, 2019
Total							2251K	382K	31191M	
Previous Pending Orde	rs	0 1 47	HOLE	A 11 18	C			0	<b>T</b>	
OrderID	ProductCode	ProductType	MOU	SupplierID	SupplierNam	e	UnitPrice (B)	Quantity	IotalValue (B)	DeliveryDate ▼
2019-5001163627-1-1	RM-67312-1	Raw materials	Pieces	4100076	Thai Auto Too Office	ols and Die Co.,Ltd., H	ead 28K	1K	25M	Saturday, February 02, 2019
2019-5001163627-3-2	RM-67313-1	Raw materials	Pieces	4100076	Thai Auto Too Office	ols and Die Co.,Ltd., H	ead 20K	1K	17M	Saturday, February 02, 2019
2040 5004452527 2 4	RM-67352-11	Raw materials	Pieces	4100076	Thai Auto Too	ols and Die Co.,Ltd., H	ead 28K	1K	25M	Saturday, February 02, 2019
2019-5001163627-2-1	1111-07552-11				Office					

Fig.9: AP&I - Open Orders - Pending Approval Tab

#### 3.5 AP&I Impact Analysis

The AP&I Impact Analysis is a specialized dashboard that highlights the impact and performance of the SCAS system on the distribution and replenishment management of your supply chain. It is a dynamic dashboard that you can easily slice and dice the data on and clearly see the impact and value of the underlying AP&I system.

#### 3.5.1 SCAS Distribution Executive Dashboard

- b1/ WarehouseID slicer: used to filter the dashboard by WarehouseID.
- b2/ ProductID slicer: used to filter the dashboard by ProductID.
- b3/ Date slicer: used to filter the dashboard by Date.
- b4/ Conventional Planning vs AI -Planning: Numbers and % Impact.



Fig.10: SCAS Distribution Executive Dashboard

#### 3.52 SCAS Distribution Products Dashboard

- b6/ Visual product filter, allowing filtering of the dashboard down to a single product.
- b7/ Table detailing product information (historical and predicted).



Products										
ProductID	InventoryValue -	InventoryValueAI	InventoryChange	SalesValue	SalesValueAI	ProcuredValue	ProcuredValueAI	LostSalesValue	LostSalesValue#	
736361	\$43.21M	\$33.3M	-22.93%	\$636.06M	\$636.06M	\$268.55M	\$279.49M	\$0		
758081	\$24.83M	\$8.52M	-65.68%	\$109.25M	\$109.25M	\$69.98M	\$76.13M	\$0		
758075	\$19.47M	\$4.98M	-74.42%	\$75.95M	\$75.95M	\$56.03M	\$58.54M	\$0		
758078	\$11.28M	\$4.25M	-62.3%	\$48.26M	\$48.26M	\$27.02M	\$36.23M	\$0		
758076	\$10.35M	\$5.32M	-48.56%	\$90.64M	\$90.64M	\$77.96M	\$68.88M	\$0		
758082	\$7.37M	\$5.4M	-26.66%	\$63.41M	\$63.41M	\$37.76M	\$48.41M	\$0		
724093	\$7.33M	\$547.32K	-92.53%	\$4.81M	\$4.81M	\$0	\$2.67M	\$0		
Grand total	\$160.49M	\$90.03M	-43.91%	\$1.56B	\$1.56B	\$791.86M	\$816.93M	\$345.02		

Fig.11: SCAS Distribution Products Dashboard

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#### 3.5.3 SCAS Distribution: Inventory Dashboard

- b8/ Graph comparing historical and predicted inventory quantities.
- b9/ Graph comparing historical and predicted procurements.



Fig.12: SCAS Distribution: Inventory Dashboard

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### 3.5.4 SCAS Distribution Detailed Views Dashboard

- a1/ WarehouseID slicer: used to filter the dashboard by WarehouseID.
- a2/ ProductID slicer: used to filter the dashboard by ProductID.
- a3/ Date slicer: used to filter the dashboard by Date.
- a4/ Information cards with high-level overview information.
- a5/ Table with details on warehouses.
- a6/ Warehouse geographic locations on map.
- a7/ Table detailing customer sites.
- a8/ Customers' geographical locations on map.

ProductID	•		30A3 00			Jul 1, 2013 - Dec 31, 2013
# of Warehouses 1		# of Sites 275		# of Suppliers 99		# of Products 362
		Wai	ehouses			
WarehouseName Cou	Intry Total_Procured -	Total_Invoiced Total_Deliv	er Lost_Sales Inver	ntoryVal COGS	Turnover DSI	Canada
warehouse_name_377 US	\$1.81B	\$3.3B	3.3B \$58.66K	\$224.34M \$1.76B	7.9 46.43	
						C A
					1-1/1 < >	Google Keyboard shortcuts   Map data ©2021   Terms of
CustomerName	SiteName	Country		Total_Invoiced +	Total_Delivered	
customer_name_825	site_name_1438	US		\$72.4M	\$72.4M	Canada Canada
customer_name_5936	site_name_1856	US		\$31.61M	\$31.61M	
customer_name_2436	site_name_1210	US		\$28.23M	\$28.23M	n Ic
customer_name_1305	site_name_700	US		\$26.86M	\$26.86M	
customer_name_2427	site_name_1201	US		\$25.93M	\$25.93M	Mexico
customer name 1682	site name 997	US Grand total		\$23,73M \$3,38	\$23.73M \$3.38	Venezuela
					1 - 275 / 275 〈 〉	Google
						Reyboard shortcuts   Map data @2021   Terms d

Fig.13: SCAS Control Tower Distribution Dashboard

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- a9/ Table detailing information on suppliers.
- a10/ Suppliers' geographic locations on map.
- a11/ Table detailing product information.

				Suppliers				and the second s	
SupplierName	SupplyDep	otID	Country		Total_Recei	ved +	# of Products		
supplier_name_505	1457		US		\$4	140.21M	2	Canada	
supplier_name_4744	1091613		US		\$4	402.74M	8	and some of the	
supplier_name_623	255585		US		\$	19.11M	9	United Staff	North
supplier_name_1101	383597		US		\$	04.18M	10	10 - 20 - C	Atlanti Ocear
supplier_name_2275	859598		US		5'	100.04M	1	Mexico	+
sunnlier name 1152	411601		115			194.95M	12		Managerata
			Grand total			\$1.81B	303		Colombia
							1-33/33	Keyboard shortcuts	Map data ©2021 Terms of l
					All Products	;			
ProductCode	ProductName	ProductUOM		Quantity_Invoiced	Quantity_Procured	Total Invoiced •	Total Procured	Lort Salar	
								LUSI_Sales	Inventory_Valu
product_code_8361	product_name_8361	Kilo Gram		1.9M	1.8M	\$1.05B	\$425.45M	\$12.6M	Inventory_Valu \$18.3
product_code_8361 product_code_6673	product_name_8361 product_name_6673	Kilo Gram Kilo Gram		1.9M 431.1К	1.8M 422.2K	\$1.05B \$194.83M	\$425.45M \$100.04M	\$12.6M \$106.68K	\$18.39 \$894.89
product_code_8361 product_code_6673 product_code_739	product_name_8361 product_name_6673 product_name_739	Kilo Gram Kilo Gram Kilo Gram		1.9M 431.1K 423.7K	1.8M 422.2K 488.2K	\$1.05B \$194.83M \$174.9M	\$425.45M \$100.04M \$144.71M	\$12.6M \$106.68K \$824.45K	\$18.39 \$894.89 \$8.17
product_code_8361 product_code_6673 product_code_739 product_code_8034	product_name_8361 product_name_6673 product_name_739 product_name_8034	Kilo Gram Kilo Gram Kilo Gram Kilo Gram		1.9M 431.1К 423.7К 387.2К	1.8M 422.2K 488.2K 405.5K	\$1.05B \$194.83M \$174.9M \$147.57M	\$425.45M \$100.04M \$144.71M \$122.05M	\$12.6M \$106.68K \$824.45K \$440.49K	\$18.39 \$894.89 \$894.89 \$8.17 \$3.44
product_code_8361 product_code_6673 product_code_739 product_code_8034 product_code_6022	product_name_8361 product_name_6673 product_name_739 product_name_8034 product_name_6022	Kilo Gram Kilo Gram Kilo Gram Kilo Gram Piece		1.9M 431.1K 423.7K 387.2K 9.6M	1.8M 422.2K 488.2K 405.5K 9.7M	\$1.05B \$194.83M \$174.9M \$147.57M \$131.24M	\$425,45M \$100.04M \$144.71M \$122.05M \$54.35M	\$12.6M \$106.68K \$824.45K \$440.49K \$6.84K	Inventory_Valu \$18.39 \$894.89 \$8.17 \$3.48 \$160.41
product_code_8361 product_code_6673 product_code_739 product_code_8034 product_code_6022 product_code_1820	product_name_8361 product_name_6673 product_name_739 product_name_8034 product_name_6022 product_name_1820	Kilo Gram Kilo Gram Kilo Gram Kilo Gram Piece Kilo Gram		1.9M 431.1K 423.7K 387.2K 9.6M 304.6K	1.8M 422.2K 488.2K 405.5K 9.7M 382.1K	\$1.05B \$194.83M \$174.9M \$147.57M \$131.24M \$123.04M	\$425,45M \$100.04M \$144.71M \$122.05M \$54.35M \$111.59M	\$12.6M \$106.68K \$824.45K \$440.49K \$6.84K \$505.72K	Inventory_Valu \$18.39 \$894.89 \$8.17 \$3.44 \$160.41 \$5.0
product_code_8361 product_code_6673 product_code_739 product_code_8034 product_code_6022 product_code_1820 product_code_4305	product_name_8361 product_name_6673 product_name_739 product_name_8034 product_name_6022 product_name_1820 product_name_4305	Kilo Gram Kilo Gram Kilo Gram Kilo Gram Piece Kilo Gram Kilo Gram		1.9M 431.1K 423.7K 387.2K 9.6M 304.6K 247.4K	1.8M 422.2K 488.2K 405.5K 9.7M 382.1K 262.1K	\$1.05B \$194.83M \$174.9M \$147.57M \$131.24M \$123.04M \$105.25M	\$425,45M \$100.04M \$144.71M \$122.05M \$54.35M \$111.59M \$88.8M	\$12.6M \$106.68K \$824.45K \$440.49K \$6.84K \$505.72K \$300.01K	Inventory_Valu \$18.39 \$894.89 \$8.17 \$3.44 \$160.41 \$5.0 \$2.77
product_code_8361 product_code_6673 product_code_739 product_code_8034 product_code_6022 product_code_1820 product_code_4305	product_name_8361 product_name_6673 product_name_739 product_name_8034 product_name_6022 product_name_1820 product_name_4305	Kilo Gram Kilo Gram Kilo Gram Kilo Gram Piece Kilo Gram Kilo Gram Grand total		1.9M 431.1K 423.7K 387.2K 9.6M 304.6K 247.4K 136.9M	1.8M 422.2K 488.2K 405.5K 9.7M 382.1K 262.1K 149.3M	\$1.05B \$194.83M \$174.9M \$147.57M \$131.24M \$123.04M \$105.25M \$3.1B	\$425,45M \$100.04M \$144.71M \$122.05M \$54.35M \$111.59M \$88.8M \$1.8B	\$12.6M \$106.68K \$824.45K \$440.49K \$6.84K \$505.72K \$300.01K \$23.64M	Inventory_Value \$18.39 \$894.89 \$8.17 \$3.48 \$160.41 \$5.6 \$2.77 \$274.96

Fig.14: Supplier information

a12/ Visual product filter, allowing filtering of the dashboard down to a single product.



	product_code_2089	product_code_7486		product_code	product_cod.	prod prod pr pr p	prod prod
product_code_1820			product_code_884	produ produ pro	prod prod.	prod pro pr pr pr produc prod pro pro	pro pro prod
				product pro	odu product_c.	prod prod pro pr p p pr pr pr pr. pr pr pr pr.	р 
	product codo 7542			product pro	odu pro pro.	produ pr pro pr	<sup></sup> p
	product_code_r542	product_code_9379	product_code_793 product_code_53.	product_code pro	od	proprpn prprpn prpp.	D
				pro product pro	produ	pr pr pro pro n	

Fig.15: Visual product filter