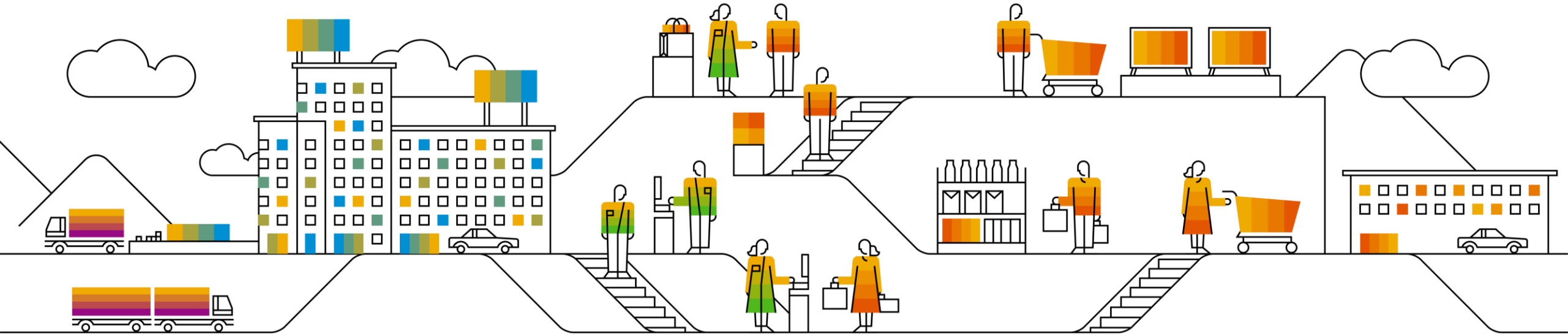

SAP Customer Activity Repository

Overview for African SAP User Group

Ines Wannemacher, Solution Management Retail
October 1st

PUBLIC

THE BEST RUN SAP

Agenda

- Intelligent Enterprise & Reference Solution Architecture
- Overview SAP CAR - Components
- Overview SAP CAR - Consuming applications
- Overview SAP CAR - Customers
- Overview SAP CAR - Roadmap

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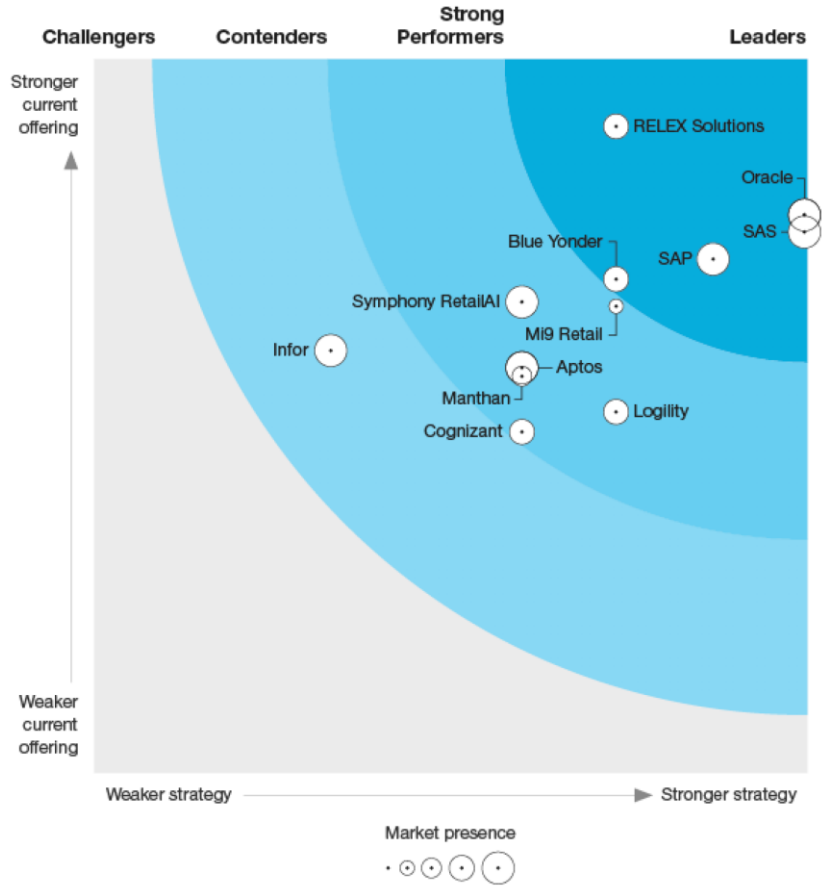
The Forrester Wave™: Retail Planning Q1, 2020

FIGURE 1 Forrester Wave™: Retail Planning, Q1 2020



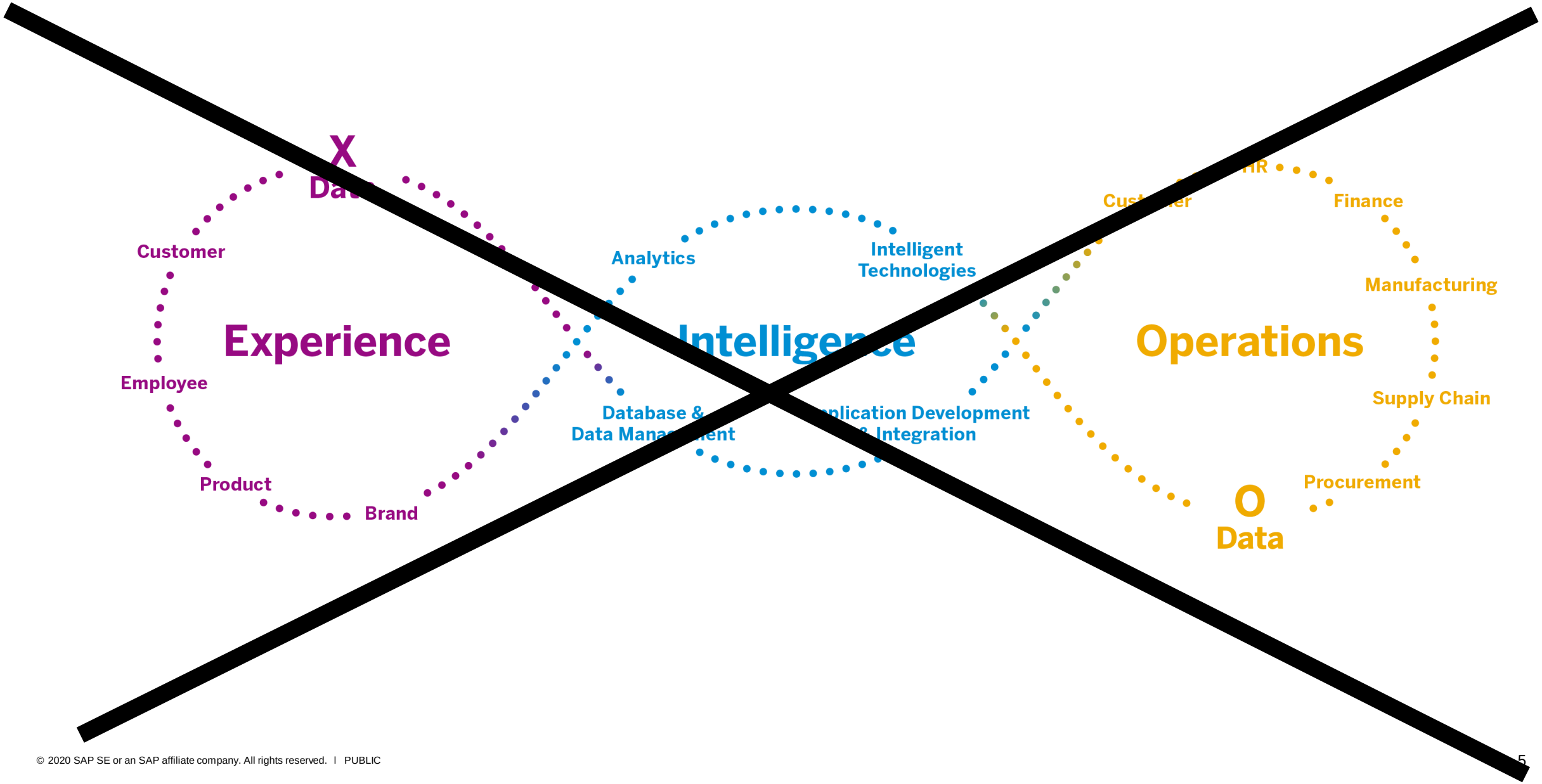
SAP ranked as a **Leader**

"SAP's patient investment in retail planning is paying off"

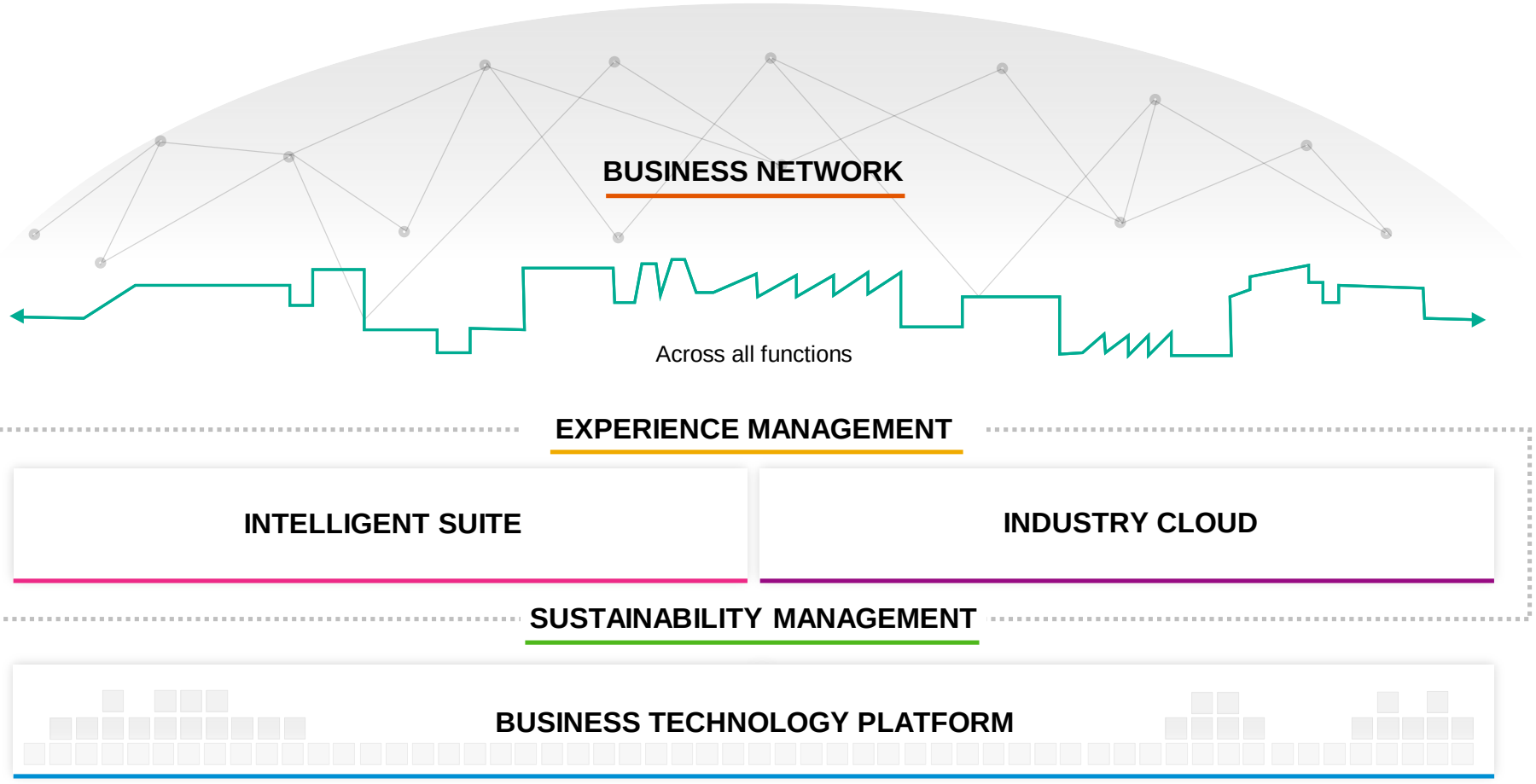
Evaluated SAP solutions:

- SAP Customer Activity Repository (including Unified Demand Forecast)
- SAP Merchandise Planning
- SAP Assortment Planning
- SAP Allocation Management
- SAP Forecasting and Replenishment
- SAP Promotion Management

Bye bye infinity loops



Intelligent Enterprise



THE BEST RUN SAP®

High Level Reference Solution Architecture – (*planned, **vision)

Experience: **Experience Management** — Customer | Employee | Product | Brand

Intelligent Suite: Customer – **SAP CX**

- **SAP Marketing Cloud**
- **SAP Commerce Cloud/Upscale**
- **SAP Customer Data Cloud**
- **SAP Sales Cloud**
- **SAP Service Cloud**

Intelligent Suite: Merchandise & Fashion Management, Enterprise Management, Supply Chain, Finance, HR, Supplier Networks

SAP S/4HANA Retail for merchandise mgmt./ for fashion and vertical business

Master data, assortment, pricing and promotion, MRP, merchandise buying, allocation, inventory management, (advanced available-to-promise, retail store management, sales order mgmt …

SAP S/4HANA Enterprise Management LoB solutions

for finance, asset management, sales, sourcing & procurement, manufacturing, R&D/engineering, supply chain, service, HR, industry & technology solutions (see here) …

SAP Customer Activity Repository application bundle

POS Data Transfer and Audit, unified demand forecast, article availability and sourcing; SAP Omnichannel promotion pricing

SAP Merchandise Planning
SAP Assortment Planning
SAP Promotion Management
SAP Allocation Management
SAP Replenishment Planning*

SAP Ariba
SAP Integrated Business Planning
S&OP, Demand, Supply
SAP Supply Chain Management
SAP (Forecasting and) Replenishment

Industry Cloud

- **SAP Consumer Sales Intelligence**
- **SAP Customer Order Sourcing**
- **SAP Omnichannel Pricing & Promotion Service**
- **Intelligent Store****
- **Predictive Inventory Orchestration****
- **Omnichannel Order Mgmt. & Fulfillment****

Eco system

- SAP Mobile Consumer Assistant by GK
- SAP Dynamic Pricing by GK, cloud edition
- SAP Omnichannel Point-of-Sale by GK, cloud ed.
- Loyalty by Annex CLD
- SAP Loss Prevention by Fujitsu
- …

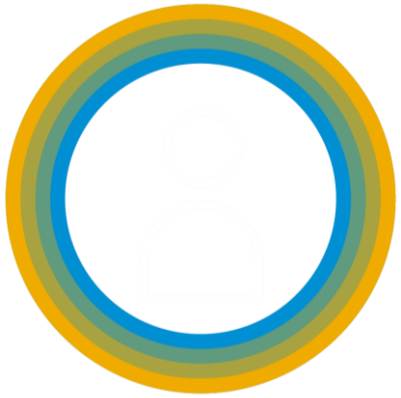
- SAP Omnichannel Point-of-Sale by GK
- SAP S/4HANA for agreement profitability and negotiation by gicom
- SAP Master Data Governance, retail and fashion management extension by Utopia
- …

Analytics: **SAP BW/4HANA** (Industry content) **– SAP Analytics Cloud** (Model Company content)

Technology: **SAP Business Technology Platform** — Data Plane | Foundational Plane | Application Plane | Analytics

* Road map https://roadmaps.sap.com/welcome

SAP CAR (aka SAP Customer Activity Repository) provides …



A unified view on sales, inventory, and demand

An omnichannel retailing foundation

An integrated planning & predictive platform

Analytics & can serve analytical applications

SAP Customer Activity Repository applications bundle and environment

- Real-time hub providing insight about the business, customers, & inventory
- A predictive platform for integrated, omnichannel planning process
- A platform for innovation

S/4HANA
(or SAP Merchandising)
for Retail or for Fashion and Vertical business
Master data
Transactional data
Logistic documents
Etc.

GK POS

SAP Customer Activity Repository applications bundle

Merchandise Planning | Assortment Planning | Promotion Management | Allocation Management | Replenish-ment Planning*

Omnichannel Promotion Pricing | Inventory Visibility + Omnichannel Article Availability and Sourcing

Location Cluster | Product Attributes | Promo Offer Management | Analyse / Adjust Forecast | Demand Infl. Factors

Distribution Curve | On-Shelf Availability | Unified Demand Forecast

Demand Data Foundation

POS Data Transfer & Audit | Multichannel Transaction Data Management

HANA (in-memory db, predictive analytics)

SAP Customer Activity Repository

Consumer Sales Intelligence

Analytics Cloud

BW/4HANA

Commerce Cloud

Marketing Cloud

Integrated Business Planning

(Forecasting and) Replenishment

* Upcoming innovation, subject to change

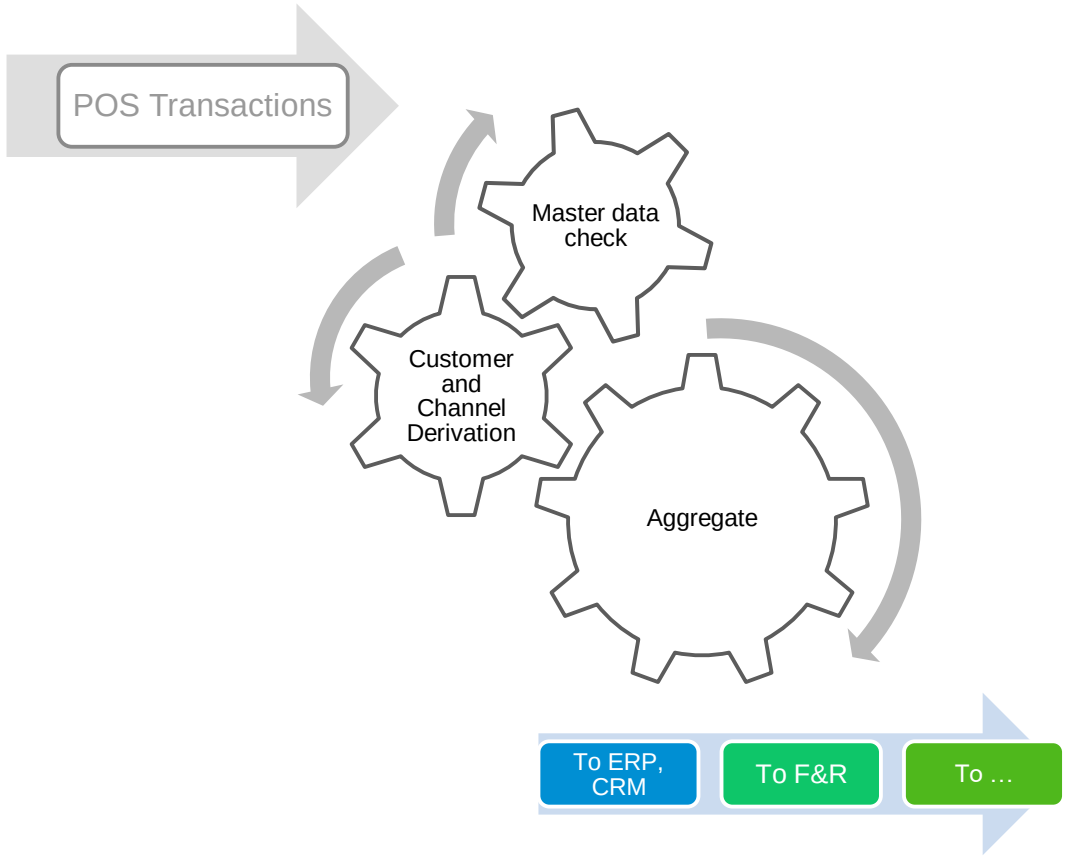
SAP CAR - Components

POS Data Transfer and Audit

POS Data Transfer and Audit

Functional scope contained in CAR is essentially identical to POS Data Management. POS Data Transfer & Audit within CAR does not require BW/BI Content anymore like POSDM.

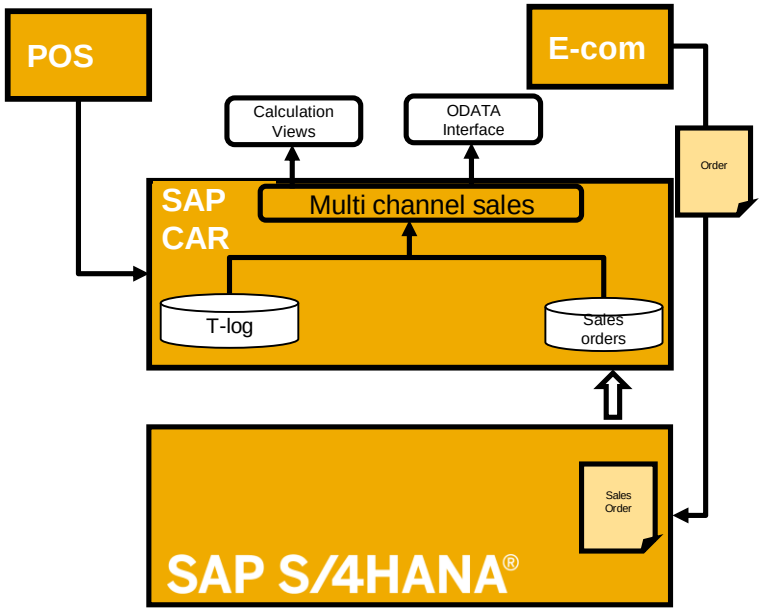
- Prepares data for subsequent processing by performing master data checks and eradicating simple errors such as duplicate transaction numbers or missing transaction numbers
- Customer and Channel harmonization
- Provides access to transactional data for sales audit (POS Workbench)
- Aggregates transactional data and transfers it to follow-on systems, such as SAP Retail, Forecasting and Replenishment,
- Provides access to real-time, non-aggregated transaction data
- Support for Season Determination by Inclusion of retail fashion season information that integrates with SAP Fashion Management (such as the season year, season, fashion collection, or fashion theme)



Multi Channel Sales

Multi Channel Sales

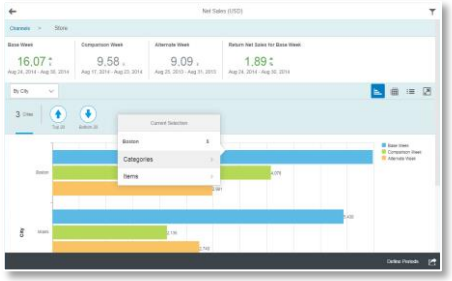
Collects a wide variety of data types (such as transaction, inventory, and master data) from multiple sources to provide an overview of business activities across all channels.



Multi Channel Sales Analytics

- Web, POS, and all channel sales
- Customer loyalty information
- Order channel vs fulfillment channel
- Near real time Inventory
- Analyze specific customer segments and demographics
- Drill down from channel to receipt
- Availability of POS, sales order, and return transactions at one place enables 360° view of the customer

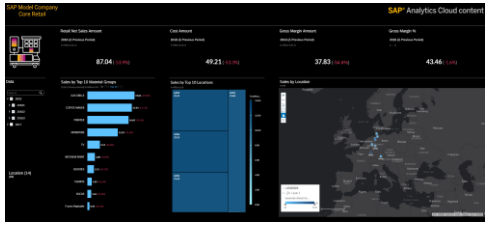
Sample of Basket Analyses by Day on SAP Analytics Cloud



Sample of Fiori Omnichannel Sales and Inventory Report

Merchandise Sales Analytics

- Analyze performance across merchandise categories
- Understand Category performance across channels and customer segments



Sample of Sales Analyses by Location on SAP Analytics Cloud

Demand Data Foundation (DDF)

Demand Data Foundation

- Demand Data Foundation (DDF) is a module in SAP Customer Activity Repository, which includes a reusable data layer that supports the planning, analysis, and forecasting required by different business processes.
- DDF manages master data such as products, locations, product hierarchy, location hierarchy, offers, or prices.
- DDF acts as a liaison between the consuming applications installed on top of SAP Customer Activity Repository and the modules within the repository that provide the analysis, modeling, and forecasting services like Distribution Curve or Location Cluster.
- DDF is also a prerequisite for Unified Demand Forecast (UDF). UDF is the module in SAP Customer Activity Repository that provides the demand modeling and forecasting services. UDF requires that DDF is installed and fully configured.
- DDF provides integration with SAP Business Warehouse (SAP BW) to support the inbound of historical sales data for the following data types(Consumption Data, POS Data, Inventory Data, Sales Orders).
- Additionally, DDF provides the integration to SAP Marketing Cloud to retrieve e.g. Target Groups to be assigned to an Offer created in SAP PM.

On Shelf Availability

OSA: Analyze Sales Patterns to Predict Out of Stocks & Potential Lost Sales

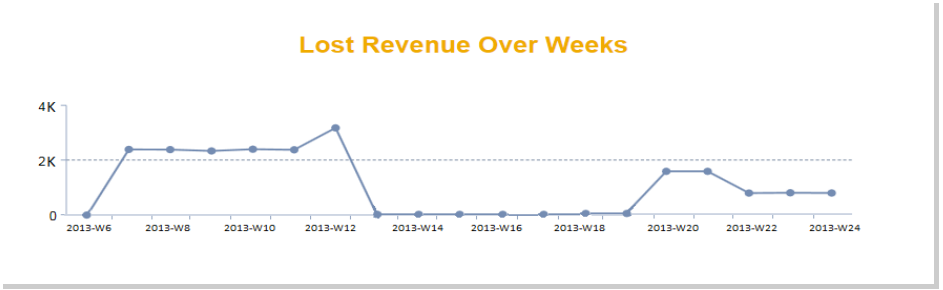
- The OSA algorithm considers the sales of a product at a specific store. This algorithm extracts the sales transactions from POS Data Transfer and Audit transaction data. Then, the algorithm analyzes the length of each sales interval between two subsequent sales of that product. Typically, long intervals indicate potential on-shelf availability issues.

- Using the analytical processing of OSA, you can determine past out-of-shelf situations.

- This information can be used to determine hotspots of out-of-shelf situations and to determine appropriate measures to improve the on-shelf availability in your stores. By continued observation of the KPIs that can be built on top of the OSA results, you can measure the success of the realized measures.

- Using the OSA monitoring for operational processes, you can receive real-time alerts for products that probably have on-shelf availability issues. Employees can react to these alerts by either refilling the shelf with products or triggering other appropriate activities.

- Additionally, you can use the OSA module together with the UDF module to generate intraday demand forecasts for your products



Product List

Display Product Alerts

Product	Lost Revenue	Lost Sales	Lost Transactions	Number of Alerts
Product 009980	$ 249.00	210.00	1,008.00	40
Product 010506	$ 221.00	216.00	792.00	40
Product 000348	$ 214.00	198.00	812.00	40
Product 002040	$ 211.00	185.00	970.00	40
Piizza Hawaii	$ 203.00	185.00	900.00	40
Product 000194	$ 201.00	207.00	842.00	40
Pizza Margherita	$ 196.00	185.00	980.00	40
Product 000957	$ 186.00	188.00	1,035.00	40

Unified Demand Forecast (UDF)

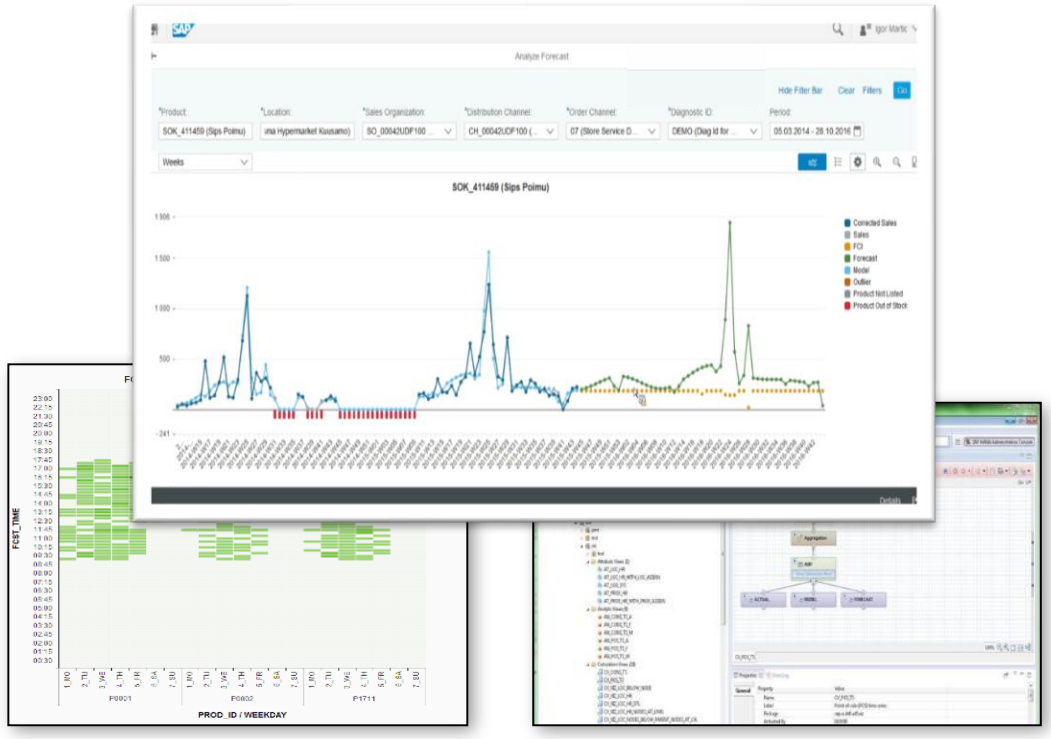
The Unified Demand Forecast (UDF) – Automated learning from data

Unified Demand Forecast (UDF) is an advanced statistical forecast using ML algorithms.

UDF combines strengths of various forecasting methods to supply predictive information **to all Retail applications**. This includes SAP Promotion Management for Retail, SAP Assortment Planning for Retail, SAP Allocation Management, SAP Forecasting & Replenishment and all future consuming applications on the **SAP Customer Activity Repository.**

SAP HANA gives the appropriate technology base to run ad-hoc simulations with in-memory performance.

- Calculates the **impact of historical factors** that influence demand like promotions, calendar events, seasonality or price elasticity, then uses Bayesian statistics to fill in the gaps of knowledge of what happened in the past.
- Calculates a forecast per **product / location / channel / promotion / day** – flexible multichannel data model is introduced, Intraday results possible
- Supports **what-if forecasting** capabilities to compare multiple scenarios, or **production forecasting** capabilities for ongoing/analytic access
- **Visualization tools and apps** available

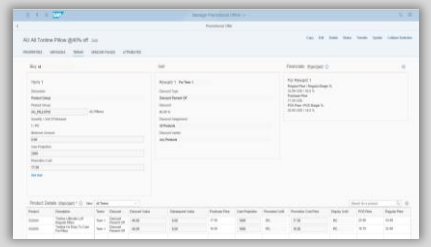


Unified E2E Processes with UDF

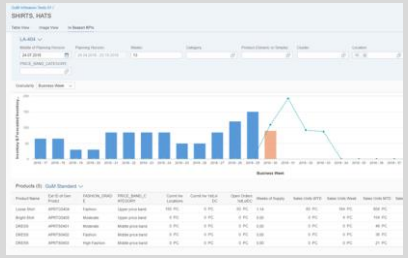
Applications on SAP CAR

Side by side

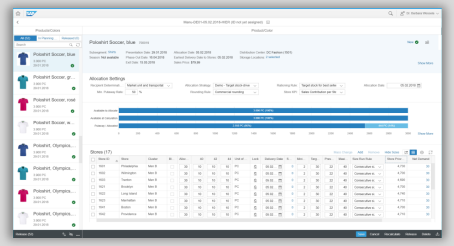
Promotion Planning



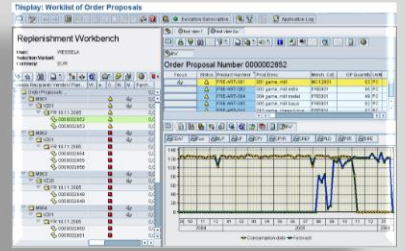
Assortment Planning



Allocation Management



Replenishment



UDF Offer Modelling

- Optimal promotion planning
- Multiple offer types (Price reduction, coupon, points)
- Multiple tactics (Shelf tag, newspaper mail-in, TV)
- Effects by product location
- What if analysis for impact of promotion type and tactics
- Consideration of offer information from Promotion Management as well as offer information from POS Data Transfer & Audit

Sales and inventory analysis

- In season KPI's to support assortment building
- Analysis of sales performance: Actual and forecasted sales revenue, margin and units per day, week, month, year
- Display of current inventory position and projection of inventory coverage based on the forecasted sales and incoming orders

UDF driven allocation plans

- UDF as input into allocation strategies, such as
  - bottom-up store demand calculation (for example, during the season)
  - top-down allocation using forecast KPIs for calculation the store split
  - promotional push with store capacity optimization (upcoming Q4/2019)
- Special handling of generic products: Modelling and forecasting on color level and automatic size distribution based on analytical size curves

Integration of UDF with SAP F&R

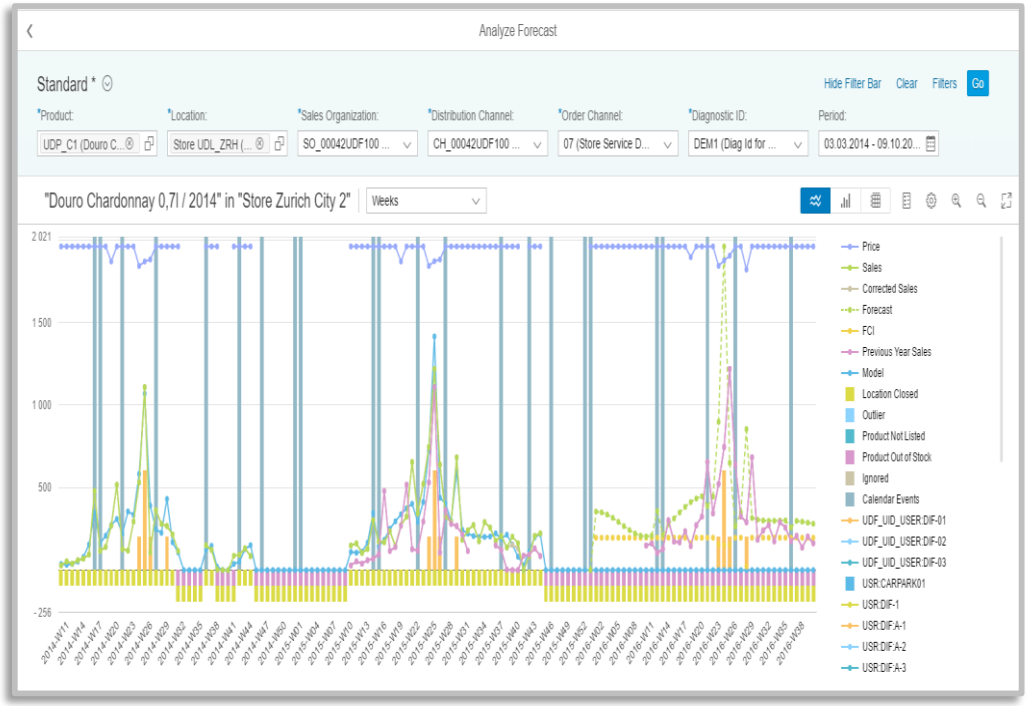
- UDF can be used by F&R as an alternative forecast to calculate the SAP F&R replenishment order proposals (including safety amounts)
- UDF can be used for selected categories (definition by forecasting profile)
- Integration Guide see note 2367172

Analyze & Adjust Forecast

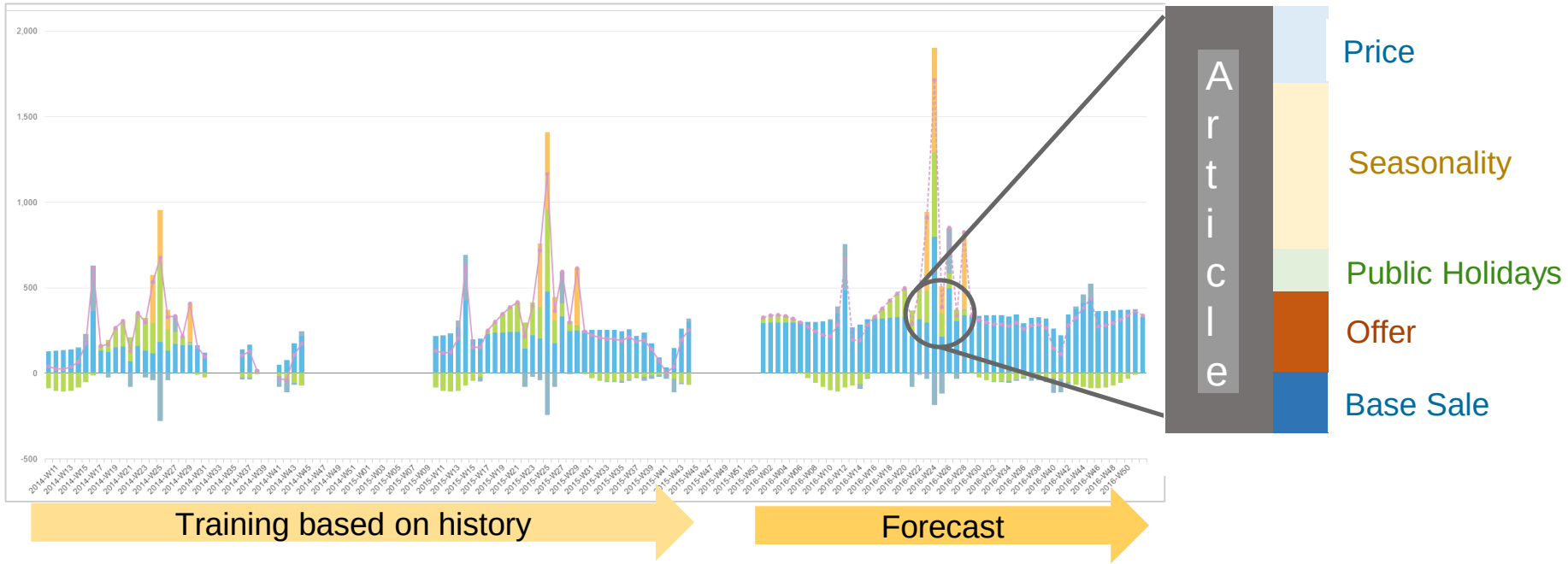
Analyze Forecast

Key features of this Analyze Forecast app are:

- Visualize the forecasts provided by UDF, which gives greater visibility into factors that influence demand
- Get better understanding how the history is explained in relation to DIFs, pre-processing findings (e.g. outliers) and other components
- Get better understanding how the forecast is calculated based on the determined model and in relation to future DIF occurrences
- Select forecasts by product, location, or direct link access (e.g. other FIORI app)
- Display information by channel
- Share information on analysis results via mail, pdf, …



Decomposition



Internal DIFs (Automatically considered)

- Offertypes from PMR
- Tactics from PMR
- Seasonality
- Day of week effect
- Public Holidays
- Price Reductions
- Trend
- Listing
- Closing Days

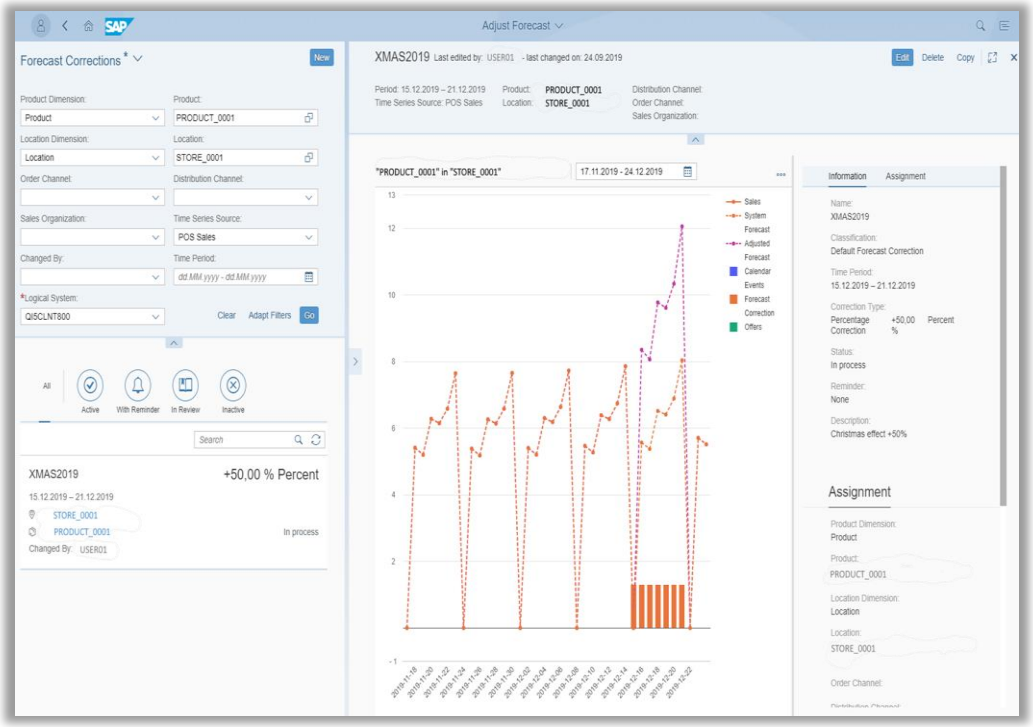
External DIFs (Entered by the user and automatically considered by UDF)

- Concerts
- School Holidays
- Weather
- Hotel Bookings
- Beginning of Month Effect
- Store Construction
- …

Adjust Forecast

Key features of this Adjust Forecast app are:

- Cross linked from UDF Analyze Forecast app.
- Forecast correction on different assignment levels (products, product hierarchy nodes, locations, location hierarchy nodes).
- Relative, additive and absolute corrections.
- Provide demand plan (final forecast) service for other processes like Replenishment.
- Demand plan considers original UDF forecast, forecast corrections and external forecast.
- Forecast corrections are not considered in forecast calculation.
  There will be no learning effect in forecast calculation!

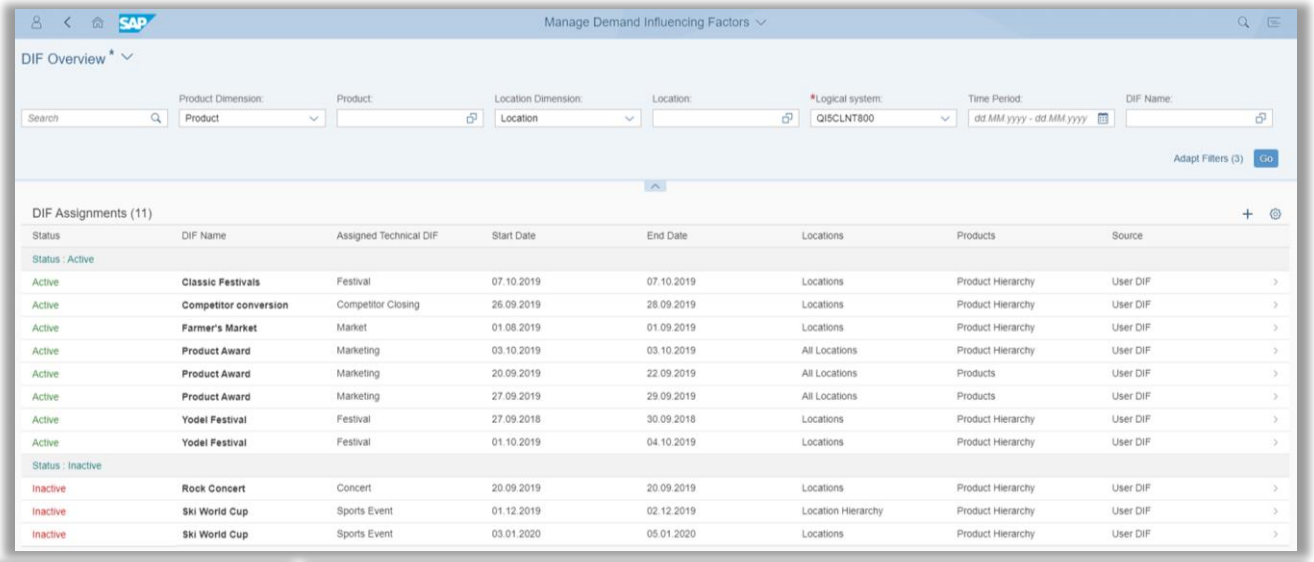


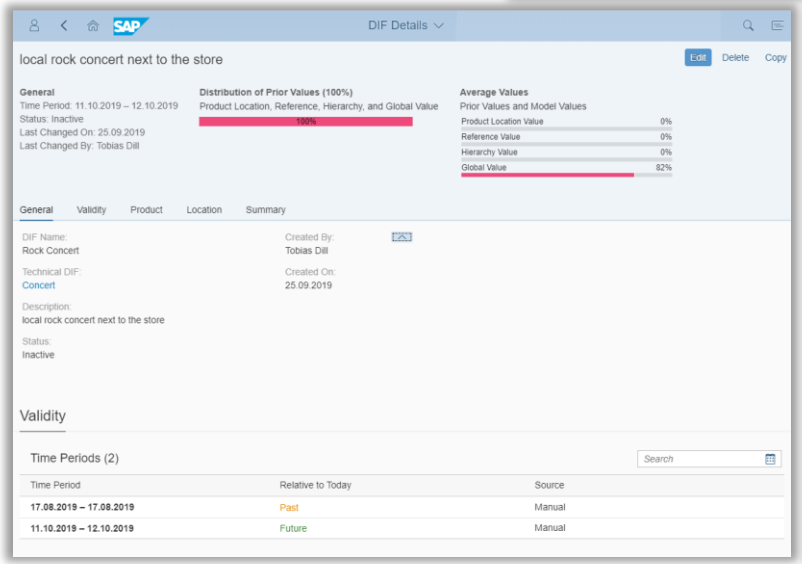
Manage Demand Influencing Factors

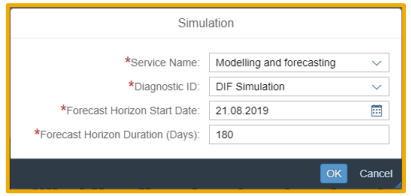
Manage Demand Influencing Factors

Key features of this Manage Demand Influencing Factors app are:

- User interface to maintain validity period and assignment for User DIFs
  (e.g. to explain store reconstruction, local event, strike impact).
- Per User DIF automated assignment to location and/or product hierarchy nodes or selected locations and/or products can be configured.
- Maintenance for
  Boolean DIFs only
- Trigger simulation
  for newly added DIF







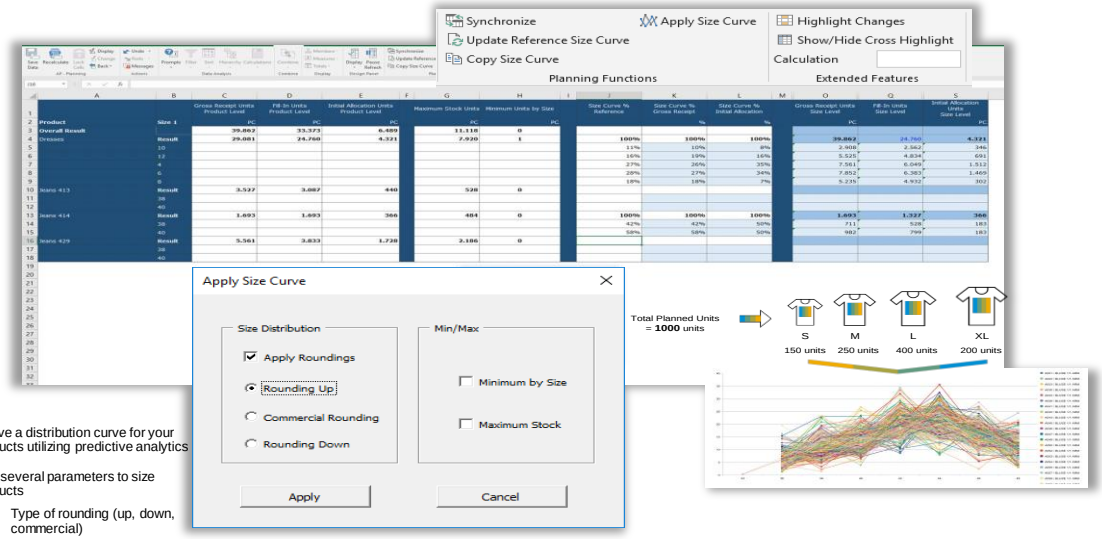
Manage Distribution Curves

Distribution Curves

- Demand Data Foundation (DDF) can calculate distribution curves for different scenarios. You can use this service and the associated Configure Distribution Curves SAP Fiori app to calculate distribution curves for different consuming applications and scenarios. The service analyzes historical daily sales data that spans over all sizes of a particular product in a particular color, while considering past and future season information.

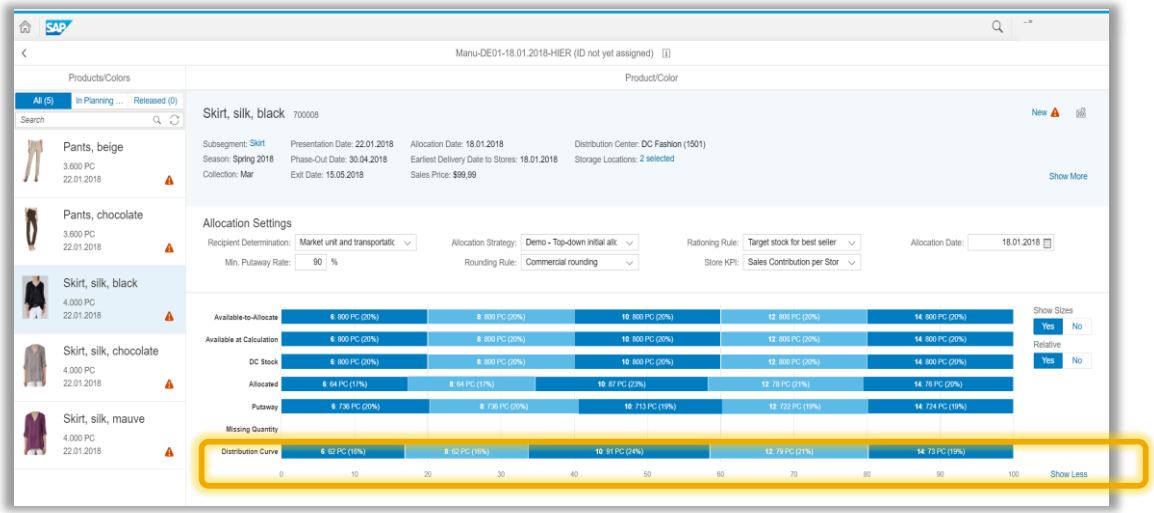
- For example in an allocation management scenario you might have a pair of jeans that is available in multiple colors and multiple sizes per color, and that you want to sell in different locations.
- You want to know for each color how many units you will most likely sell in each size, so that you can plan the stock transfer orders accordingly.

Apply Dynamic Distribution Curves to Assortment Planning - Buy Plan



- Derive a distribution curve for your products utilizing predictive analytics
- Use several parameters to size products
  - Type of rounding (up, down, commercial)
  - Minimum by size
  - Maximum stock
- Plan allocation size curve and fill-in unit size distribution

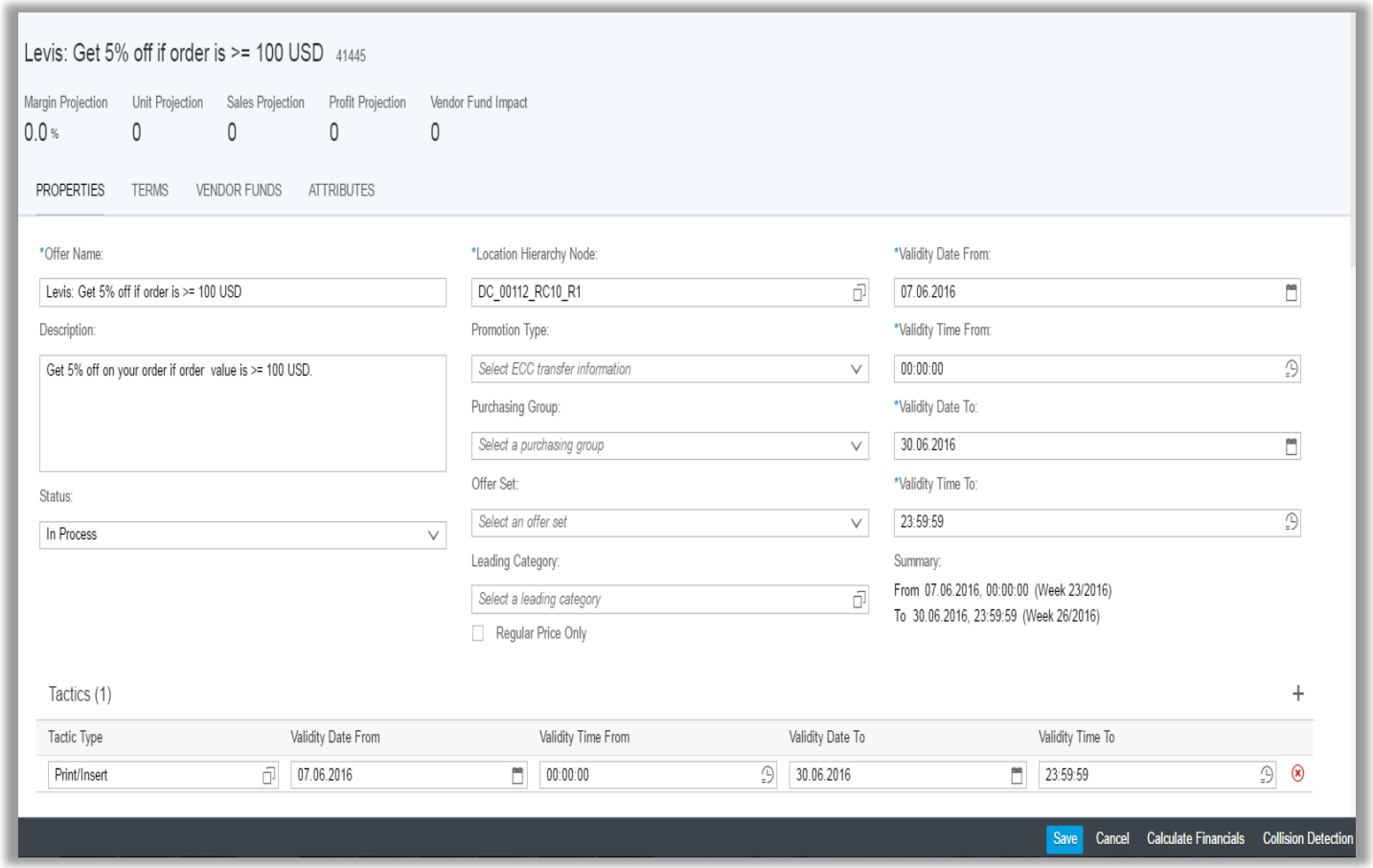
Apply Dynamic Distribution Curve to Allocation Management - Allocation Plan



Manage Promotional Offers

Manage Promotional Offers FIORI UI

- Enables a basic offer creation capability as well as enhanced Fiori based Offer creation and maintenance
- Basic Offer UI Maintenance capability without the requirement of a PMR License.
- Includes Offer templates called Term Styles. These make it faster, easier to create basic Offers.
- If the customer needs financials, vendor funds, versioning, etc. and more sophisticated marketing functionality then they need the PMR license.



Fiori Offer Maintenance UI- Offer Detail Properties Screen

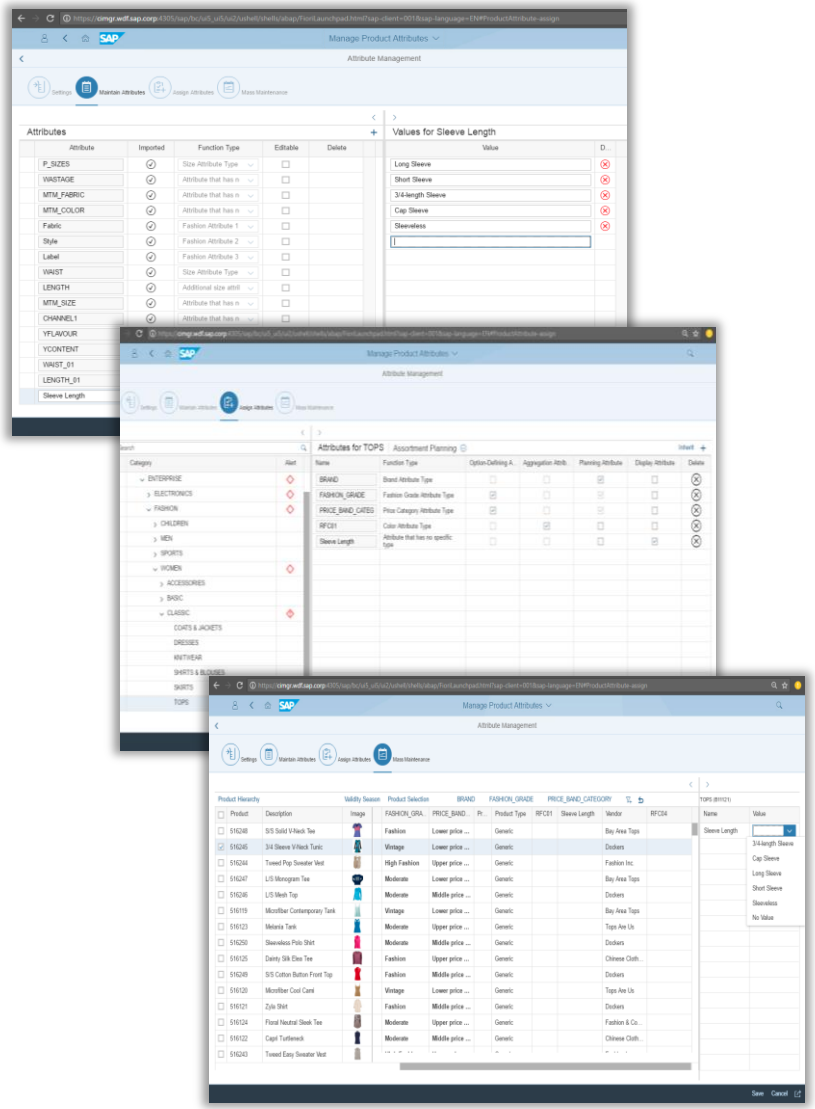
Manage Product Attributes

Manage Product Attributes

This transactional app allows planning administrators to create, configure, assign, and maintain product attributes for a selected product hierarchy. Generally, attributes help to further slice and dice product hierarchy nodes by product attributes, such as fashion-grade or price-band

Product attributes can support different business scenarios like:

- In Assortment Planning to create assortment modules to define the right assortment per location.
- For example, you can determine the total planned sales by the attribute “High Fashion” to ensure there is a good representation of “High Fashion” items in the stores.
- In Allocation Management, product attributes are used to select the workload and allocation plan to allocate the products.
- In Distribution Curve Analysis, they can make the product groups more specific (e.g. compare only tshirts of the same fashion grade).



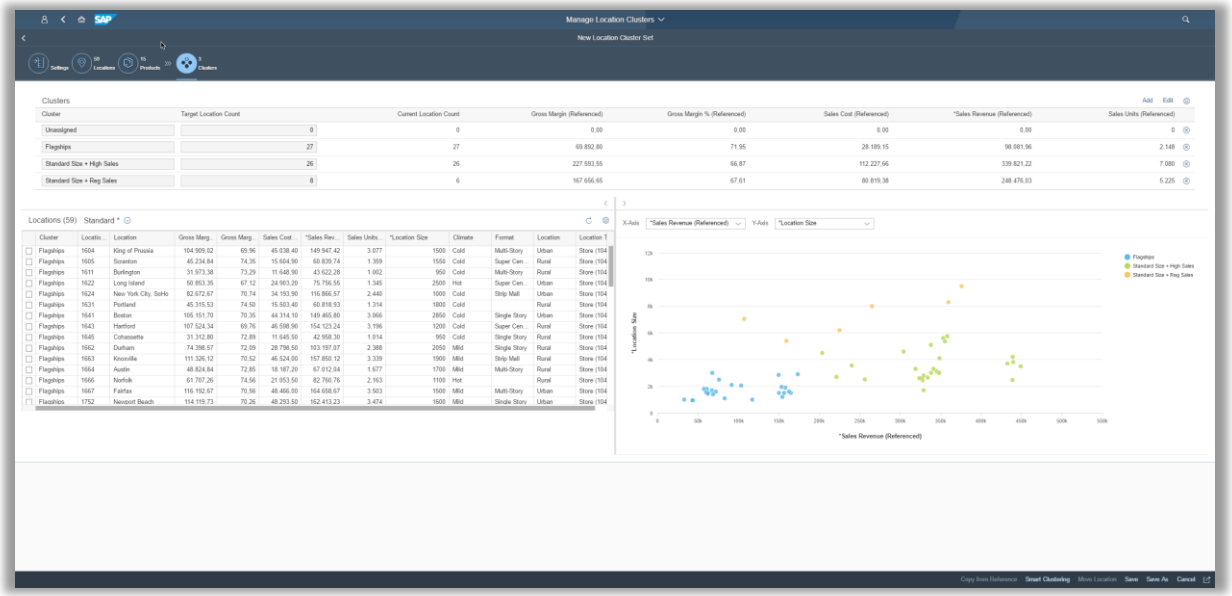
1. Create Attributes
Use existing master data attributes
Create planning-only attributes

2. Assign & Define Role
Assign attributes to product hierarchy levels
Manage exceptions
Define attribute’s role in planning:
Use to define # of choices offered
Plan KPIs at this level
Informational
Define whether to plan at style or style/color level

3. Mass Maintain
Assign attributes to products
Mass maintain

Manage Location Clusters

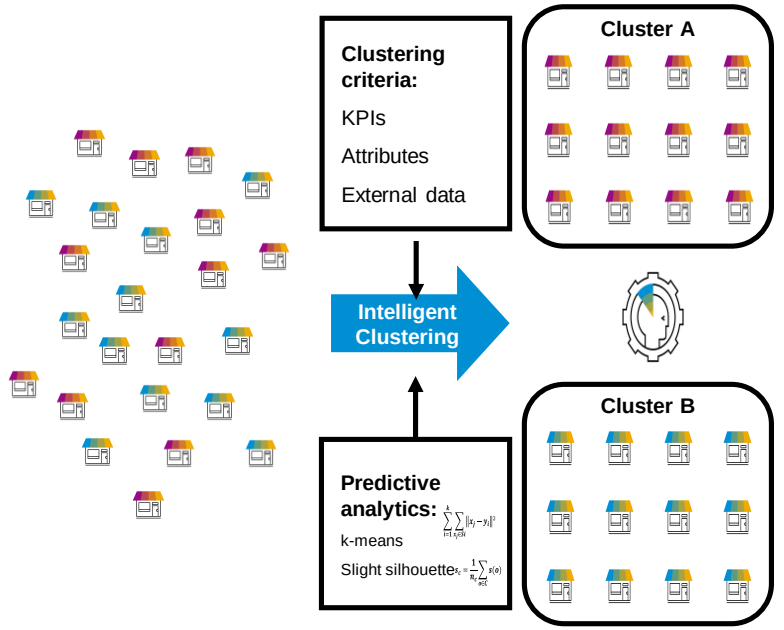
Intelligent Location Clustering



Location clusters can be created and managed by grouping locations into clusters based on common characteristics or attributes.

The following can be done:

- Specify clustering filters, such as locations and products.
- Specify settings, such as a date range and currency.
- Specify clustering criteria, that is, which key performance indicators (KPIs) or business measures you want to use as the basis for clustering.
- Group the locations into clusters based on your criteria.
- Once you have created the clusters, you can activate those that you wish to use as the basis for follow-on activities, like assortment planning, create location hierarchies or allocation planning.

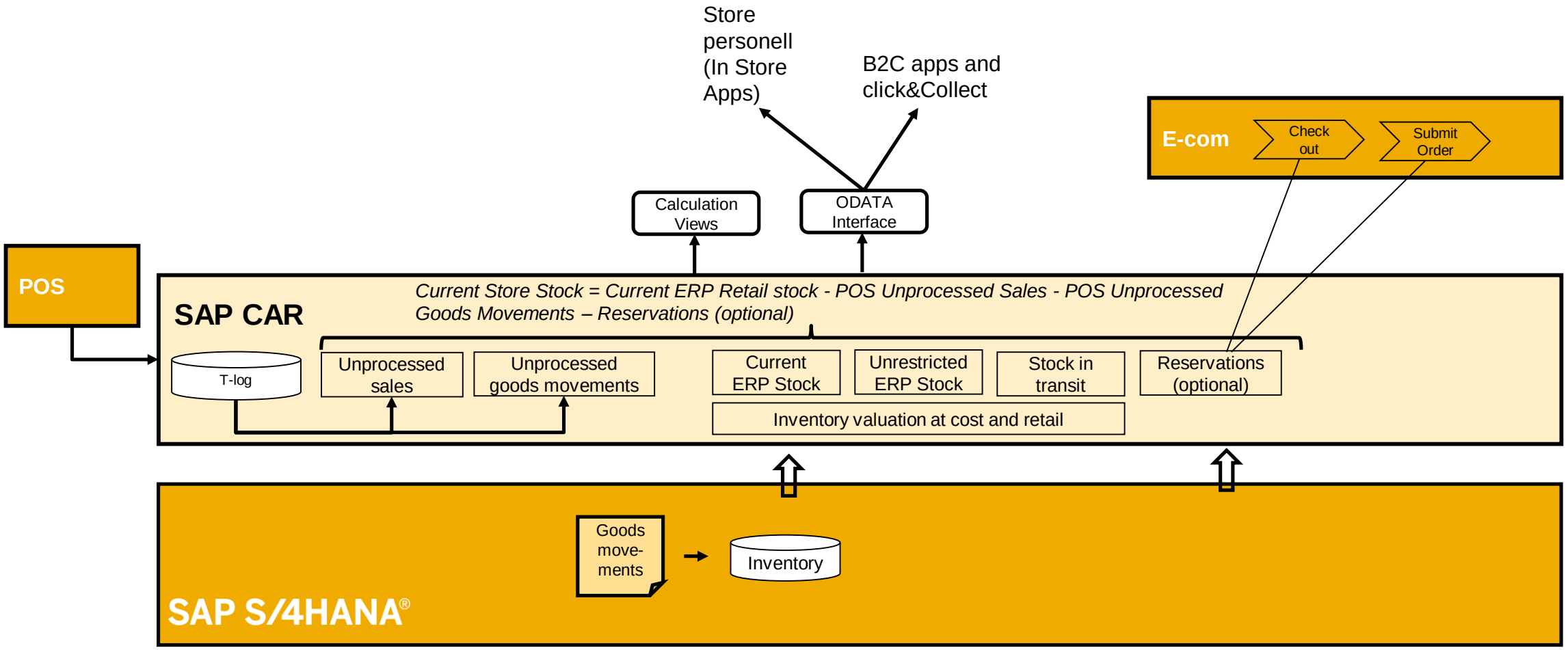


Location clusters are used for example:

- In Assortment Planning for option planning, assortment definition and sales planning
- In Allocation Management to ease parameter maintenance and for reporting purposes
- In Distribution Curve configuration for defining where the configuration shall apply

Inventory Visibility

Real Time Inventory Visibility



Omnichannel Article Availability & Sourcing

Omnichannel Article Availability

CAR is the central hub for article availability information for all channels

- Availability requests for DCs, stores and vendors
- Multiple API's provided to check article availability in CAR (taking eligible sources into account)
- Rough stock indicator (traffic lights) in a webshop (out-of-the-box integration with Hybris Commerce)

ATP information in CAR

- DC availability is based on ATP calculation in ERP (time-series information), while stores availability is based on inventory visibility in CAR (current stock information)

Temporary reservations

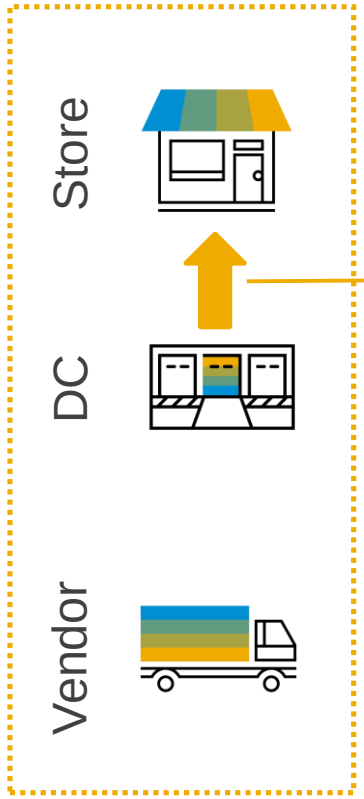
- Ensure data consistency by using temporary reservation as placeholder until ERP order is created
- Increase performance by using temporary reservation as placeholder until next ATP run for DCs

Smart update logic

- DC availability snapshot update by parallelized ATP run in ERP Retail (full & delta)
- Store availability update by real/near-time POS & SD sales order & ERP stock upload

Online Shopping Scenario using Omnichannel Sourcing and Availability

Click &



Collect

in the store

Option: Stock transfer from DC to store for click and collect

Ship

Omnichannel Promotion Pricing

Omnichannel Promotion Pricing

Provide a seamless omnichannel buying experience for end-customer across all sales channels

What is it?

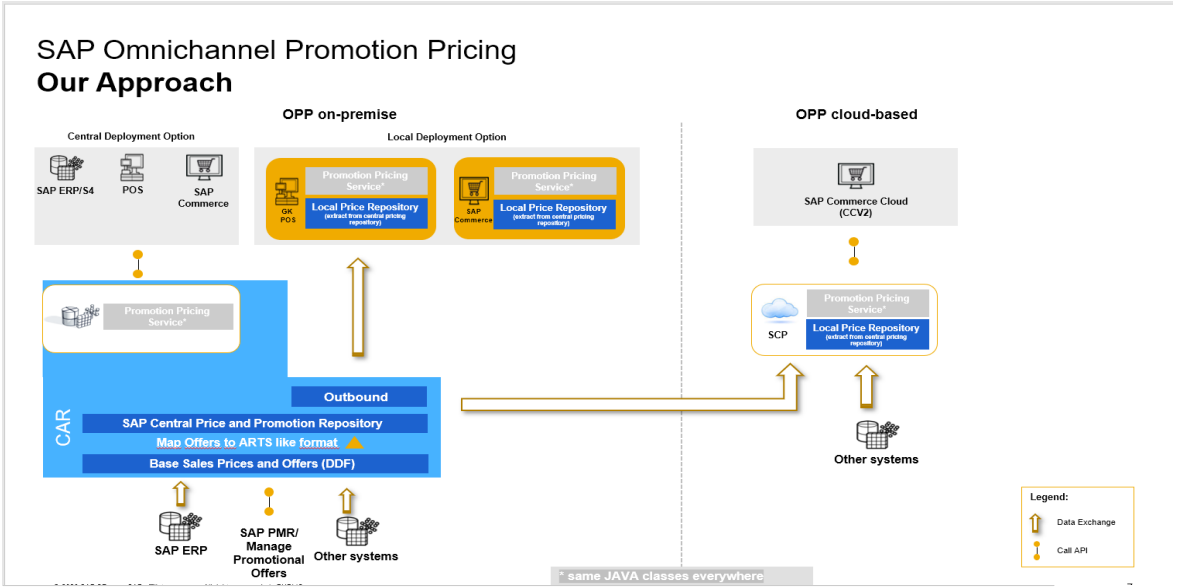
- With the new Omnichannel Promotion Pricing Service, SAP provides a solution to **ensure correct and consistent effective sales prices in all sales channels** along with the ability to introduce new pricing rule types with low implementation effort across all sales channels.

How?

- **Central price and promotion repository** containing the price and promotional values and rules needed for correct sales price calculation in all sales channels and supporting a defined set of rules (e.g. bonus buy types/ mix'n match, customer specific prices)
- **Promotion Pricing Service** provided by SAP that calls into the price and promotion repository to calculate the effective transactional price for the end-customer
- Price and promotion repository and promotion pricing service can be deployed **locally** or can be called **via web-service** (centrally)
- Provide an integration with **SAP Commerce Cloud** and **SAP ERP Sales Order**

Highlights

- Same price calculation logic (coding) in all sales channels
- One central sales price repository for price calculation purpose

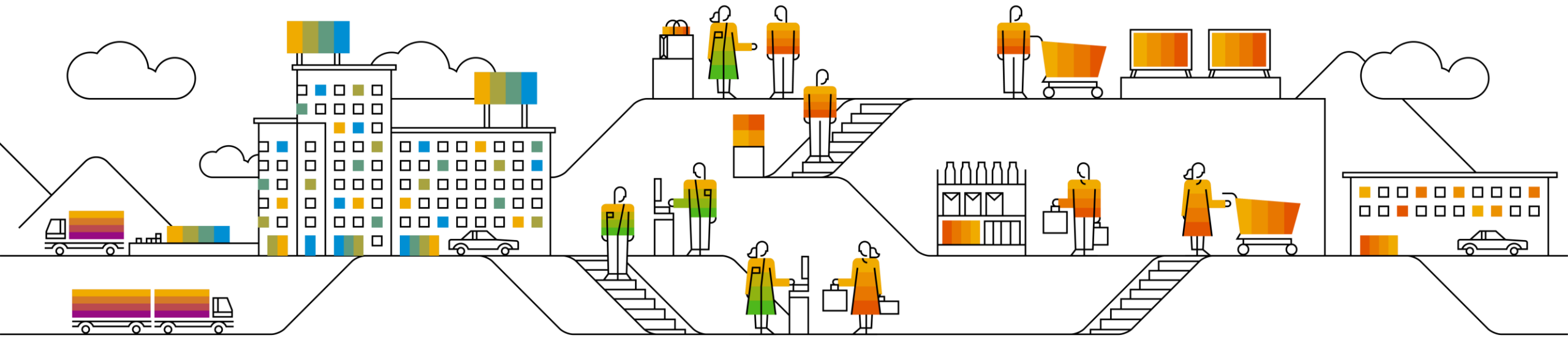


WHAT IS IN FOR YOU?

- Increase **customer satisfaction** and **customer loyalty** by having consistent price and promotion information available at all touch points
- Increase **revenue** by higher customer satisfaction and higher customer loyalty
- **Rapidly implement** new marketing initiatives and promotional offer types in all channels
- Save costs due to **low implementation and low test effort** for the retailer when introducing new pricing/offer rules

SAP CAR - Consuming applications

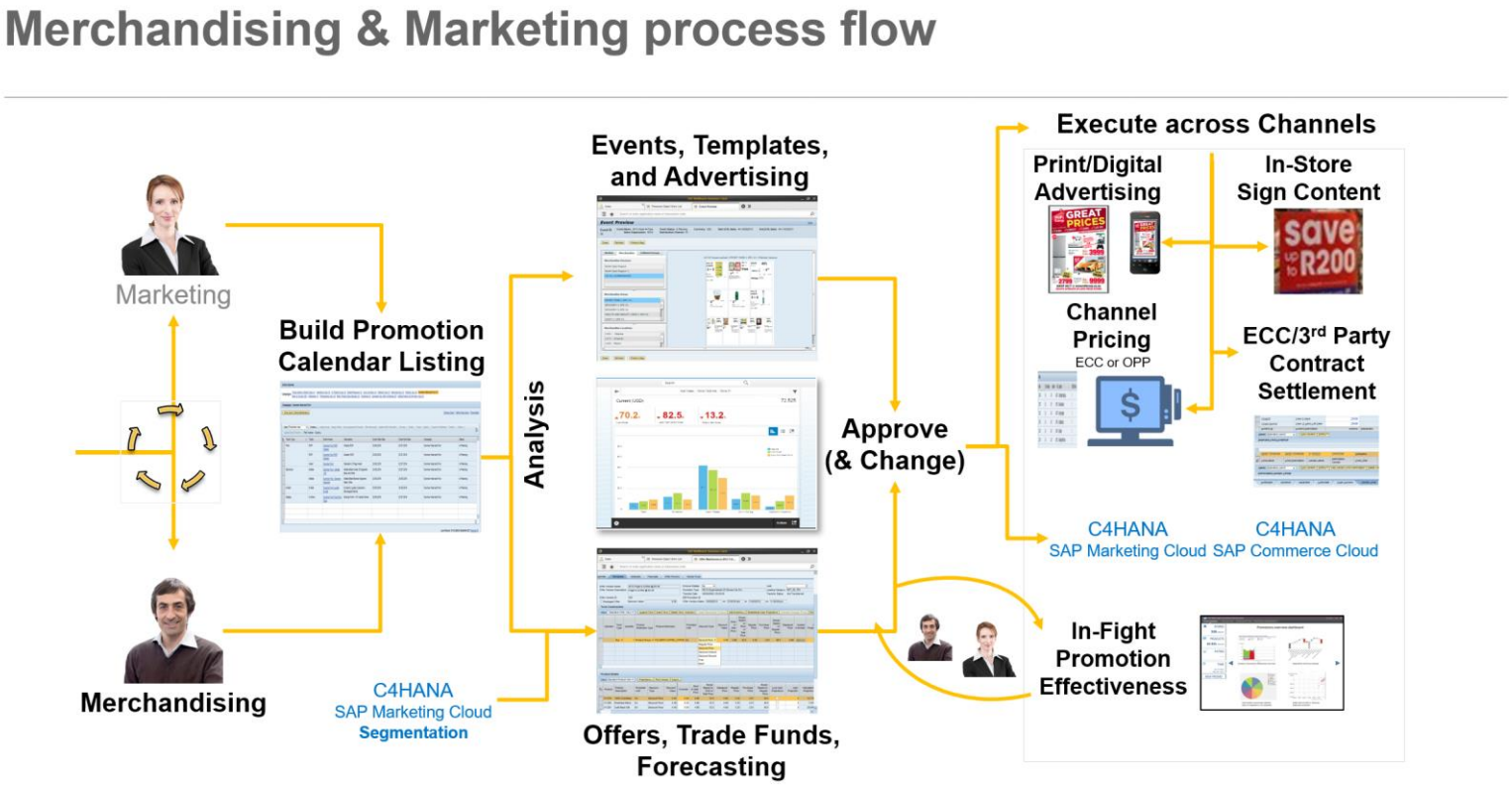
SAP Promotion Management



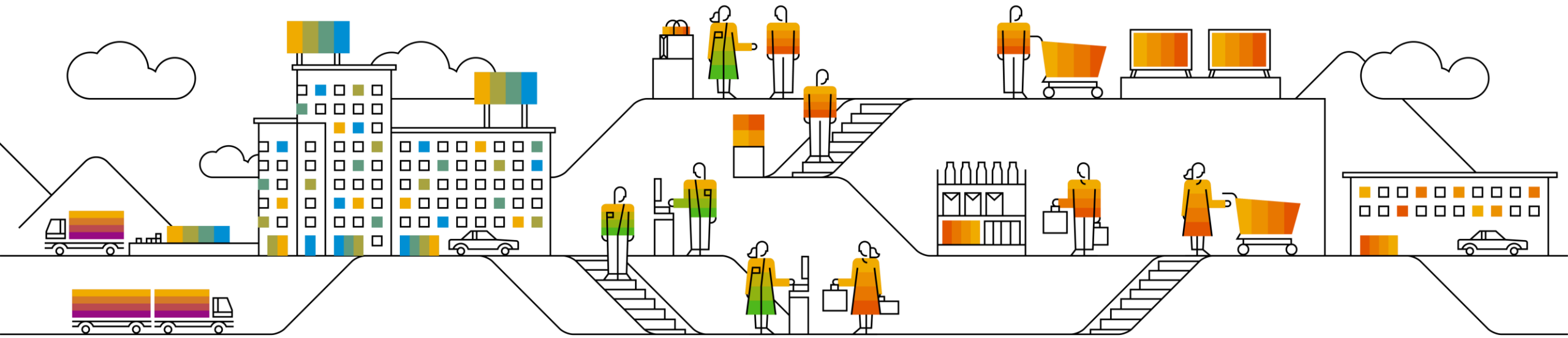
SAP Promotion Management: Solution Overview

SAP Promotion Management for Retail leverages the master data, sales analysis, and predictive algorithms within SAP CAR to enable retailers to collaboratively plan promotions in line with unique customer preferences across channels.

- Design promotion pricing and offers to in line with customer preferences and financial objectives
- Leverage vendor funding to maximize margins from trade fund proposal through collection and settlement
- Preview promotion presentation across media types such as print, digital, web, poster, and coupons
- Create what-if simulations to predict financial performance and optimize
- Integrate approved promotions through POS/channel, advertising, and supply chain

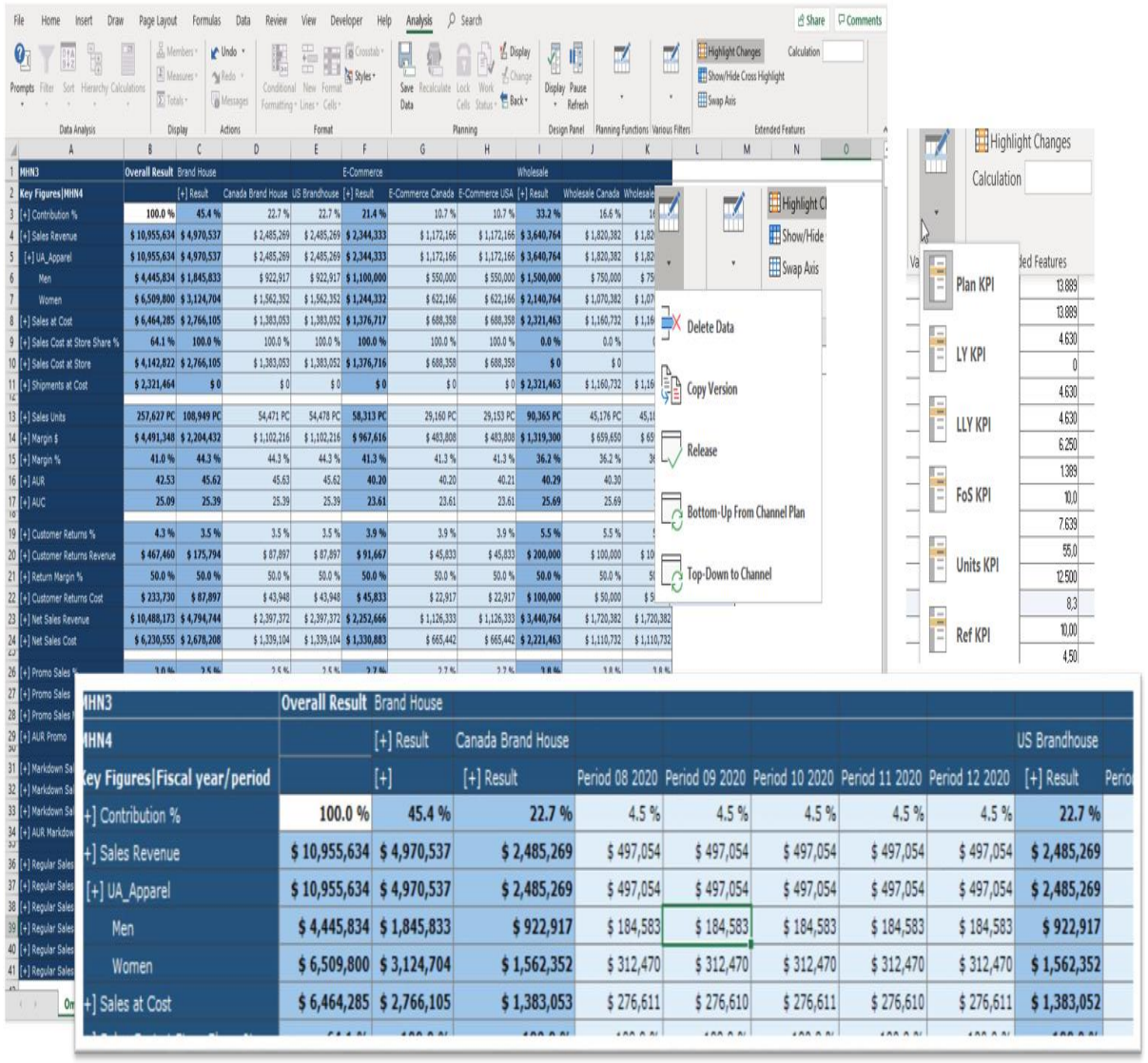


SAP Merchandise Planning

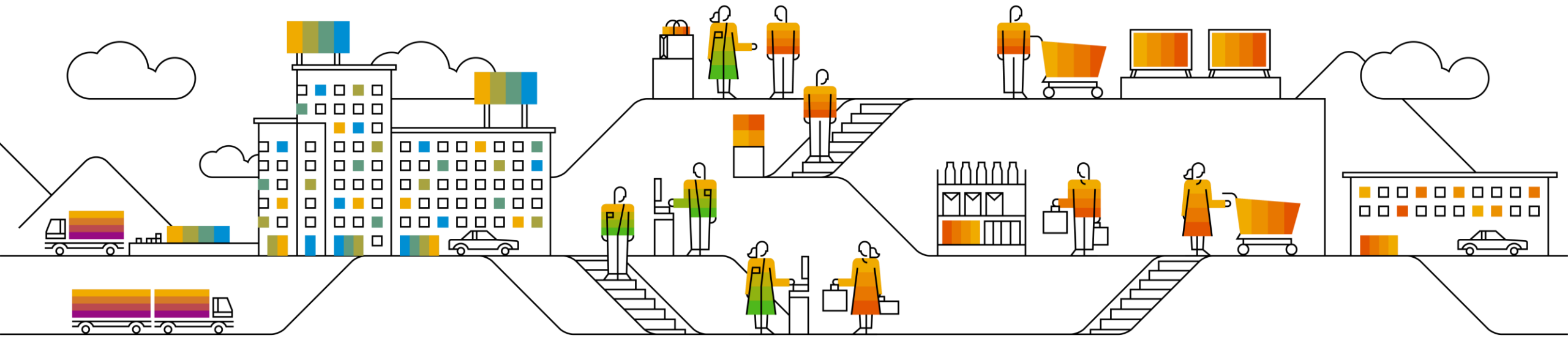


SAP Merchandise Planning: Solution Overview

- Plan all channels in one solution: retail, e-commerce, & wholesale
- Work using a familiar, customizable, Excel-based user experience
- Use best-practices templates and/or build tailored workbooks using a planning toolkit
- Plan at any level of the merchandise and organizational hierarchies
- Plan top-down, bottom-up, or middle-out
- Create an open-to-buy budget
- Define alerts and exceptions
- Lock cells, columns, & rows
- Utilize “rules of precedence” to control the order & priority of calculations
- Manage multiple plan versions and history through a versioning concept
- Access limited to area of responsibility
- Plan flavors of sales: regular sales, promotion sales, & markdown sales
- Support multiple currencies & languages

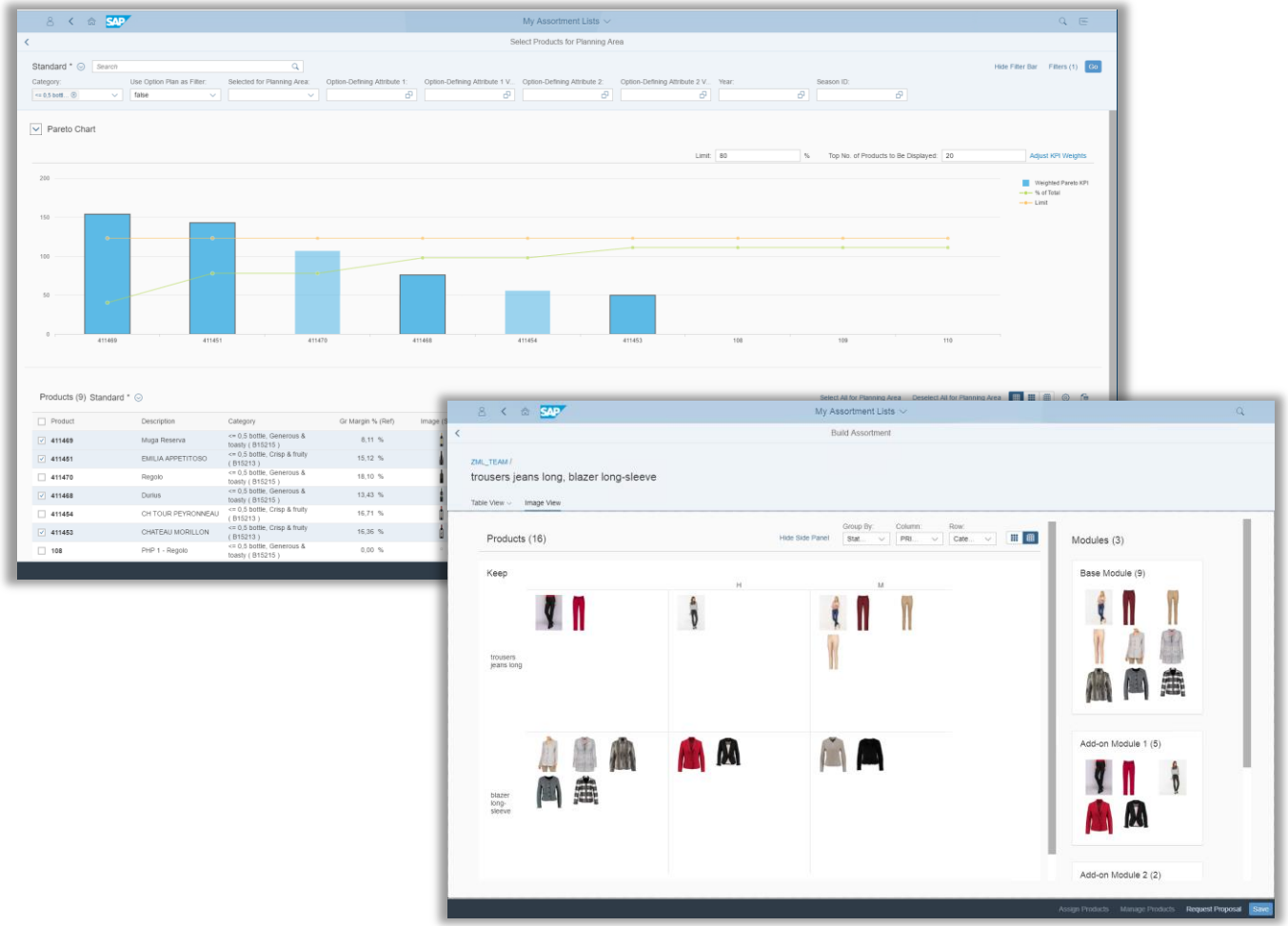


SAP Assortment Planning

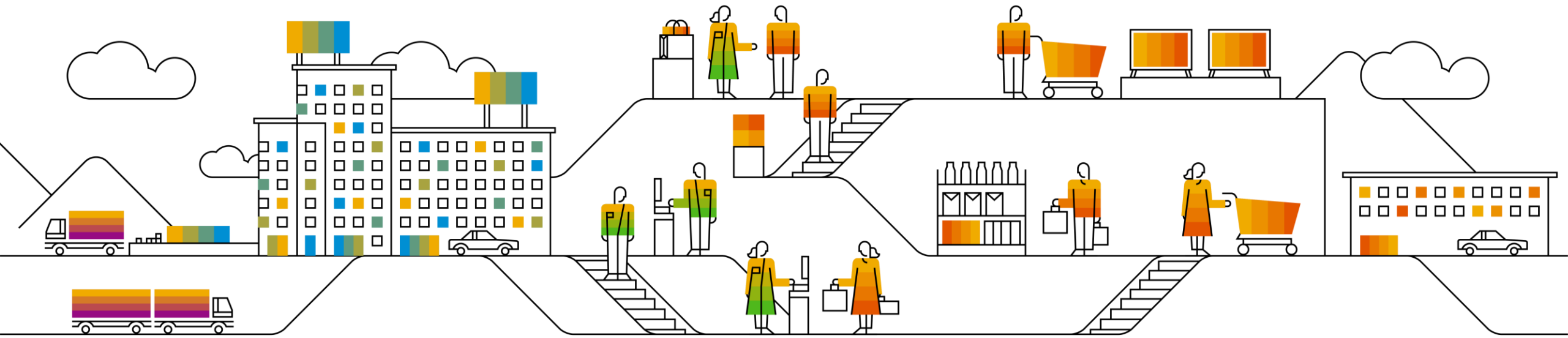


SAP Assortment Planning: Solution Overview

- Select products to sell, where to sell those products, & how much to buy
- Plan all channels: retail, digital, & wholesale
- Cluster locations using attributes, history, & predictive analytics
- Create an assortment strategy before defining an assortment by planning the number of customer choices by key attributes (“option planning”)
- Utilize modules to group and plan products together that are assigned to the same locations. Group products using any criteria (e.g., collections, climate, demographics, display / space, etc.).
- Build assortments based on combinations of carry-over products & new products
- Simplify new product planning using placeholder products & reference products
- Plan sales & purchase quantities
- Use a simple, customizable, & highly-visual user experience
- Manage user access by planning area of responsibility



SAP Allocation Management



SAP Allocation Management: Solution Overview

SAP Allocation Management manages the **distribution of products from distribution centres to stores** with special attention to

- **seasonal** and short to medium lifecycle products (focus on **Fashion**)
- **Promotional products** (one-timers, multi-timers, focus on **Grocery**)

The solution supports the allocation process by offering following important predefined **business scenarios**:

- Plan-, target, or KPI-driven **initial allocation**
- Automatic forecast-driven **in-season fill-in**
- In-Season **manual push**
- **Promotional push** with capacity optimization
- **Promotional buy** and multiple logistic units

It optimizes allocation quantities by automatic rationing in case of limited availability (according to ATP), and cross-product optimization capabilities.

It gives full **transparency** into both, upcoming workloads and planned allocations across the market and down to store and size, as well as allocation analysis

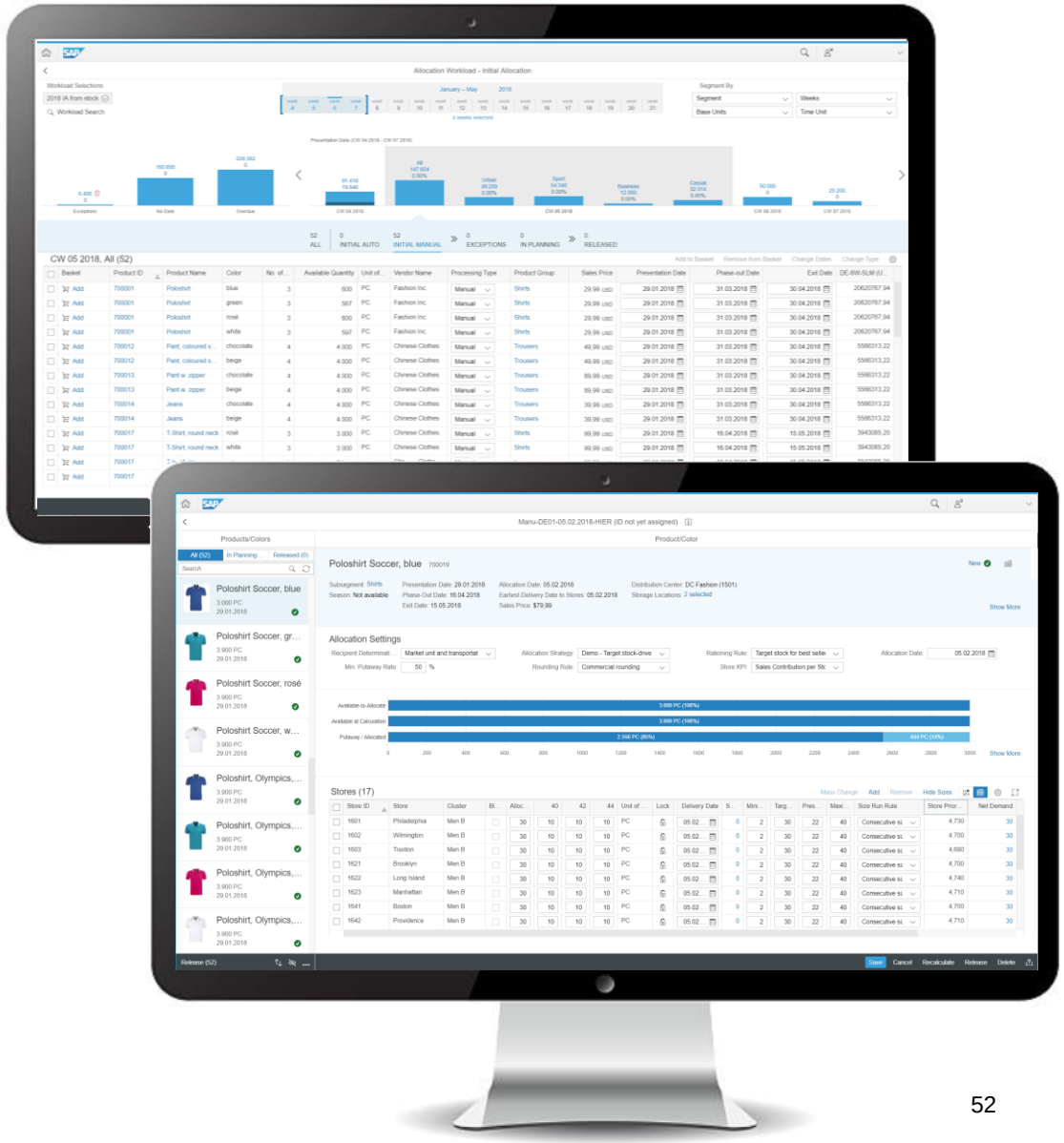
It uses capabilities of **Customer Activity Repository**, such as

- Unified Demand Forecast (on single product or product/color level)
- Size curve analysis (down to store or cluster, for automatic size break-down)
- Store clustering
- Real-time inventory (including stock in transit)

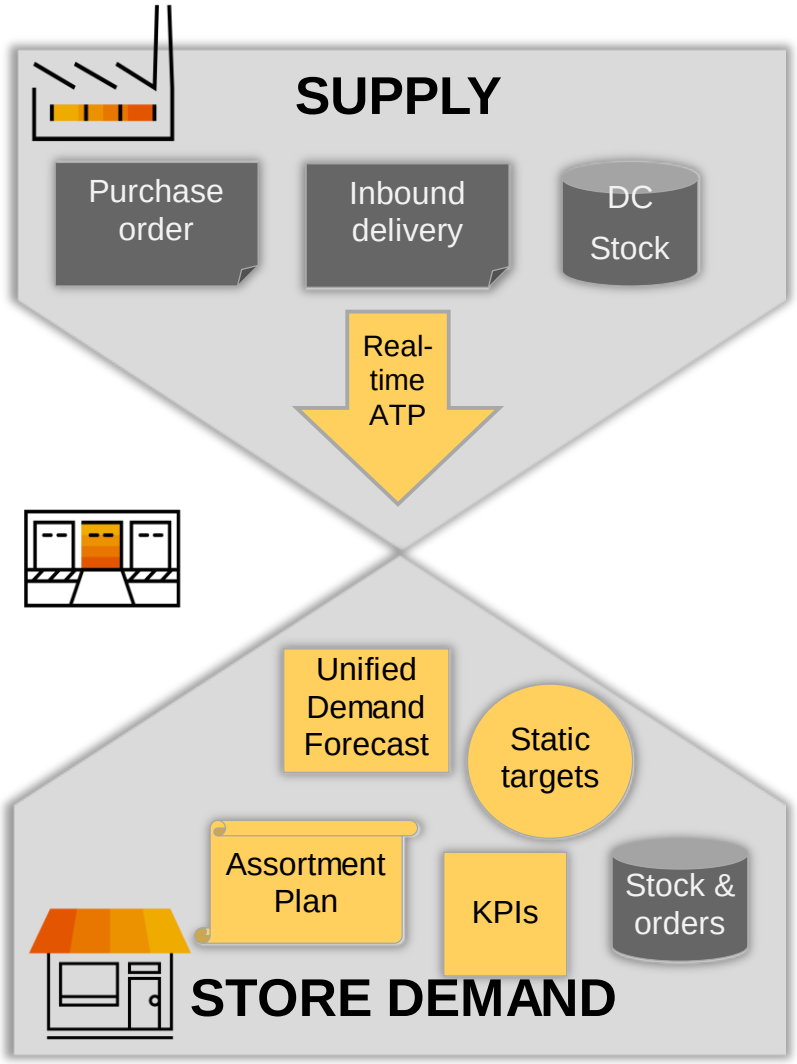
The solution offers best of breed retail **allocation logic** and the possibility to run the process in a **highly automated** and system-supported way.

Typical **benefits** for the customers are:

- Higher profit by reducing markdowns, out of stocks and store-to-store movements
- High automation level freeing up time for business critical tasks
- Faster processing and inventory turns



Allocation Management: Business Scenario Options



Initial Allocation

Manually or auto triggered

Workload based on (planned) availability and driven by season; demands according to assortment plans, target settings, KPIs, forecast

Triggered from purchase orders, inbound deliveries, or warehouse stock

In-season Fill-In

Fully automated

Demand-driven with UDF (or target-driven or refill), real-time store inventory & open orders

Triggered after initial allocation, slows down at phase-out, stops at exit

In-season Manual Push

Manually triggered, possible any time after initial push

Typically based on sales performance KPI (others possible)

Promotional push

Workload based on promotional offers

Store allocation driven by promotional forecast, inventory, total available qty etc.

Store capacity optimization: balance demand with fill levels across products and stores

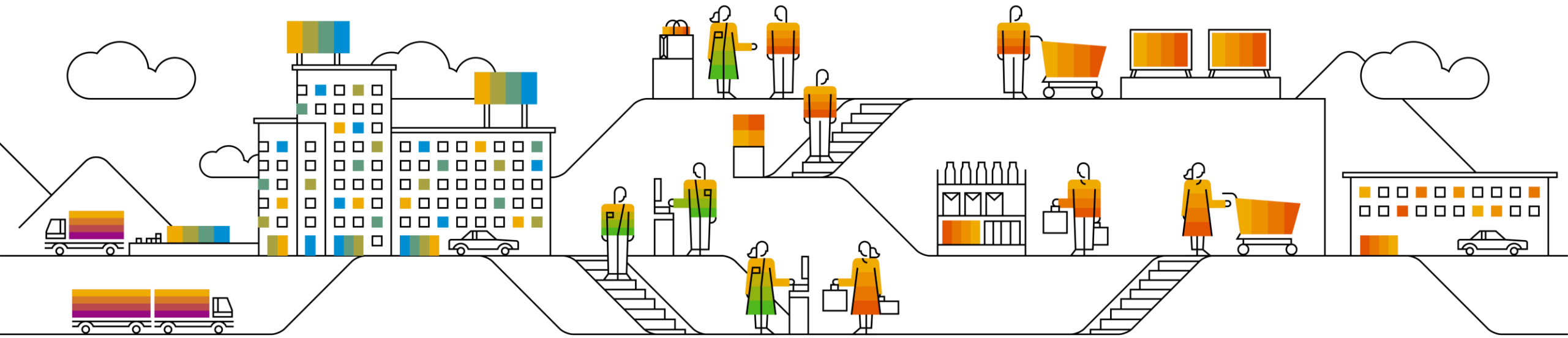
Promotional buy (RTC Q2/2020)

Workload based on promotional offers that are not ordered yet

Calculates the split between DCs

Supports multiple logistical units for a product

SAP Replenishment Planning



SAP Replenishment Planning: Solution Overview

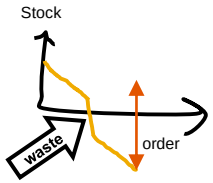
Planned Innovation

Cost optimal ordering

- Determine order amount that leads to lowest expected costs
- Consider forecast distribution and product specific situations

Intra-day and real time replenishment

- Order multiple times per day
- Consider store opening hours and intra-day sales distribution
- Use real time inventory (most current data, at different times



Prediction and consideration of expected waste

- Predict expected waste due to shelf life restrictions
- Avoid wrong stock assumptions and generate better orders

Monitoring, control and simulation

- Aggregated views on current and forecasted orders, stock
- Central cockpit for monitoring of demand planning and replenishment
- Alerting on different aggregation levels
- Simulate the impact of changed parameters

SAP CAR - Wrap Up

*Upcoming or future innovation

SAP Customer Activity Repository applications bundle:

Sales, Forecast, Vertical & Retail Supply Chain Planning and Integration

4 Perform business analysis and interactions

- Integrate seamlessly with the ERP or S/4H backend
- Perform holistic business analytics
- Vertical S&OP and supply planning processes
- Interact with marketing, commerce & vertical supply chain

3 Run planning scenarios E2E

- Plan merchandise for channels, define the assortment mix, plan sales/buy and hand-over to initial launch
- Allocate during the product's lifecycle
- Plan Promotions and push promo articles to stores
- Run your regular products through replenishment*
- Embedded intelligence (ML & optimization)

2 Manage prices, inventories & supply sources

- Manage omnichannel regular and promotional prices
- Determine article availability in any location, reserve for e-com and plan sourcing

1 Collect all sales & forecast demands

- Collect sales transactions from all channels
- Model, forecast and adjust omnichannel demands
- Analyze sales e.g. for size distribution and on-shelf availability

Integration with
- S/4HANA
- Analytics Cloud
- Marketing Cloud
- Commerce Cloud …

- Merchandise Planning
- Assortment Planning
- Promotion Management
- Allocation Management
- Replenishment Planning*

- Omnichannel Article Availability & Sourcing
- Omnichannel Promotion Pricing

- Multichannel Sales Repository (+ POS DT&A)
- Unified Demand Forecast
- Size curve, on-shelf
- Location clustering

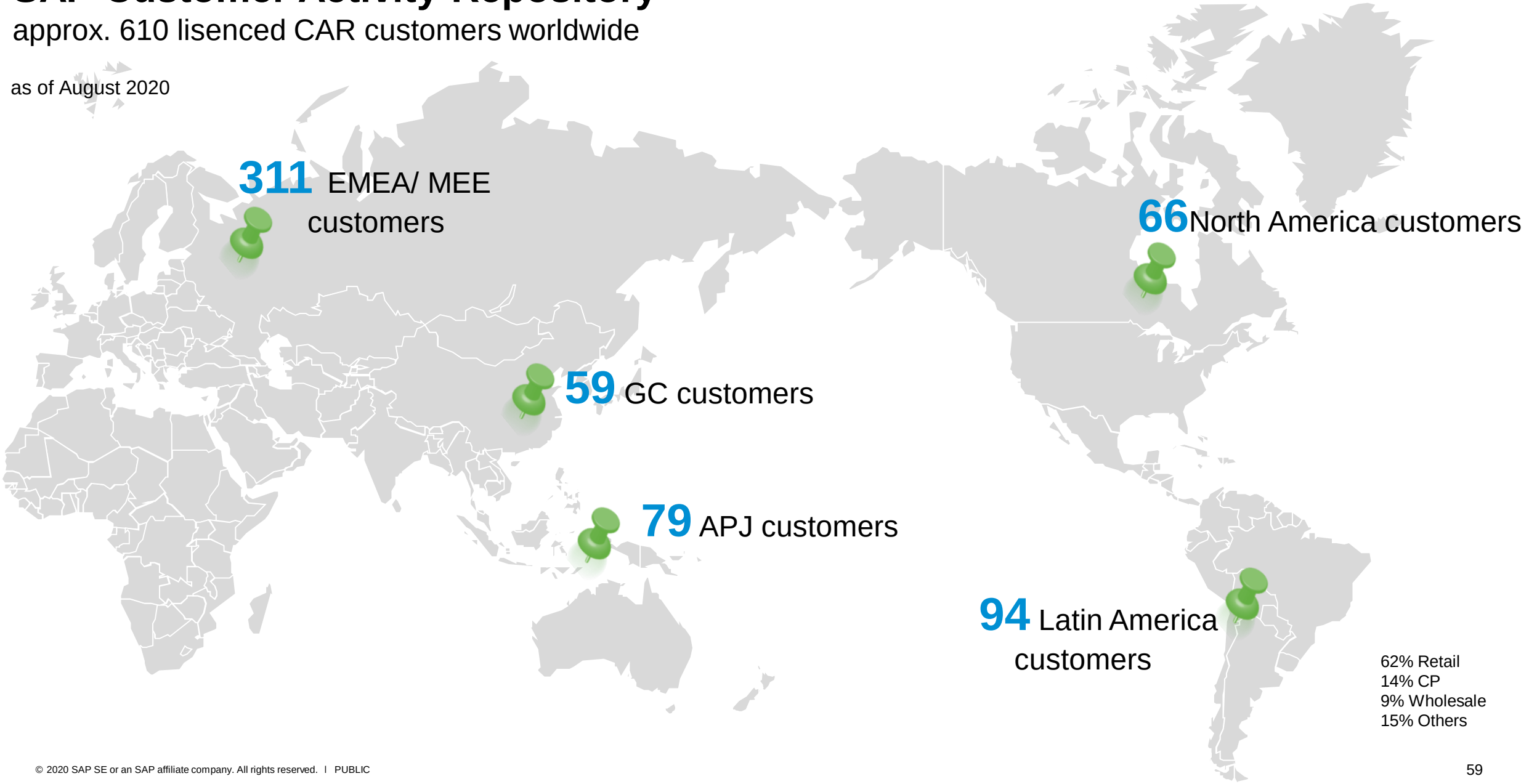
Customer Activity Repository, appl. bundle

SAP CAR - Customers

SAP Customer Activity Repository

approx. 610 lisenced CAR customers worldwide

as of August 2020



62% Retail
14% CP
9% Wholesale
15% Others

Enabling Sustainable Shopping with SAP® Promotion Management and SAP Customer Activity Repository

Before: Challenges and Opportunities

- Replace inaccurate and time-consuming manual promotion planning with an automated process using sales forecasts based on consumer behavior
- Apply intelligent algorithms to meet consumer demand and prevent lost sales, overstocks, and waste
- Maximize limited space in stores using optimal planning of promotional products
- Gain store employees' trust in the new campaign process to reduce the high cost of manual corrections

Why SAP

- Comprehensive support spanning both promotion management, from planning to execution, and procurement of nonpromotional quantities
- Superior machine learning capabilities of the unified demand forecast component of SAP® Customer Activity Repository, supporting Coop's heavily promotion-driven business for all product categories as well as replenishment planning for nonpromotional quantities
- Expertise of the retail data scientists at SAP in building an attribute-based machine learning model based on the predictive library of the SAP HANA® platform to help automate planning

After: Value-Driven Results

- Fewer overstocks as well as waste reduction leading to more-sustainable shopping
- Enhanced ability of stores to carry all promotional products to satisfy customer needs
- Better customer experiences, with fresher goods and store employees freed from manual processes to spend more time on establishing good customer relations

"By **integrating intelligent technologies into our promotions planning processes**, we can reduce residual quantities, minimize waste, and offer customers the goods they actually require in each store."

Heiner Hanser, Head of Master Data Management and Marketing Processes, Coop Group

60%

Reduction in time spent on in-store promotional campaigns with this intelligent and sustainable solution, an SAP Innovation Award winner in the "Digital Trailblazer" category

Optimal

Promotional quantities established with self-learning artificial intelligence models based on daily sales data

Coop Genossenschaft
Basel, Switzerland
www.coop.ch

Industry
Retail

Products and Services
Supermarket chain with more than 2,400 stores and 60,000 products

Employees
86,000

Revenue
CHF 30.6 million (€28 million)

Featured Solutions
SAP Promotion Management application, SAP HANA, and SAP Customer Activity Repository, unified demand forecast component

THE BEST RUN SAP®

SAP Business Transformation Study | Consumer Products | Mini King

How Do You Turn Chestnuts into Pearls on the Crown of the Snack Industry?

Guangzhou Mini King Food Co. Ltd. is a vertical enterprise that integrates R&D, refined processing, and retail sales of “green” leisure food. Its core business focuses on convenience food, and its products are sold across mainland China in regions such as Guangdong, Beijing, Shanghai, Anhui, and Hunan. The company offers more than 120 categories of products, including Chinese chestnuts, dried fruit, preserved fruit, and other healthy snacks. By selecting high-quality raw materials across the globe and improving the production process, Mini King is committed to growing its brand while promoting Chinese food culture.

With the help of the SAP S/4HANA® Retail solution for merchandise management and the SAP® Customer Activity Repository application, Mini King integrated its finance, procurement, and business processes in one central source. This made live decision-making possible based on real-time insights into its business. The new technology enables Mini King to collect information on customer behavior and product favorites. It can now make recommendations based on customer preferences, which has resulted in increased customer satisfaction and loyalty.

Promoting Chinese Food Culture with SAP S/4HANA® Retail

Guangzhou Mini King Food Co. Ltd.
Guangzhou, China

Industry
Consumer products

Products and Services
Leisure foods

Employees
3,000

SAP® Solutions
SAP S/4HANA® Retail solution for merchandise management and the SAP® Customer Activity Repository application

Mini King provides healthy leisure food for customers throughout China. SAP S/4HANA Retail for merchandise management has helped it increase efficiency, reduce warehousing costs, and improve decision-making.

Before: Challenges and Opportunities

- Provide better access to internal and external information through the unified management of front-end sales and back-office production warehouse data
- Improve data timeliness and accuracy and reduce personnel management costs to lay a solid foundation for future business growth

Why SAP

- Professional and diversified solutions in the national and international retail chain industry that ensure alignment with where the company is headed in the future
- SAP S/4HANA Retail for merchandise management for quick return cycles, efficient business processes, and the ability to process massive amounts of real-time data
- Basis to build an omnichannel Big Data platform for retail with the SAP Customer Activity Repository application

After: Value-Driven Results

- Real-time profitability projections
- Decision-making system support by retail Big Data
- Vertical integrated operations from production to store
- Calculation of selling costs on a daily instead of monthly basis
- Enhanced communication and cooperation across different lines of business
- Online processing instead of paper processing for faster business transactions
- Warehouse inventory reports that show real-time stock visibility, helping reduce warehouse costs and lower financial reconciliation workload

"By enabling digital management, we have seen improvements that stagger the imagination: from paper to online, closings in an hour instead of a business week. It's good we're mobile now too. We're rolling."

Xianhao Cai, CIO, Guangzhou Mini King Food Co. Ltd.

Increased

Procurement efficiency, inventory turnover, and financial productivity

1 hour

Required for monthly closing, down from 5 days

Faster

Store operations, from next-day manual upload to two-hour auto-synchronization

Real-time

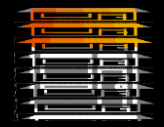
Profitability projections

“We will **increase the number of stores to over 500** and combine online sales to intensify our efforts in e-commerce. The aim is to go national with the Mini King brand, and even international.”

Junhai Pan, General Manager, Guangzhou Mini King Food Co. Ltd.

To become China's leading brand in fried chestnuts and go national and international with its dried fruits and other products, Mini King embarked on a journey of digital transformation in 2015. It sold products online to accelerate market expansion and implemented SAP S/4HANA® and the SAP® Customer Activity Repository application to help build a first-rate logistics system for leisure food and upgrade system management through IT.

120
Categories of product, including Chinese chestnuts and dried fruit



300
Stores across China

3,000
Operational employees and physical store sales associates across China

European-based, Global Fashion Company
SAP Allocation Management

Company
Anonymous

Headquarters
Europe

Industry/Segment
Fashion

Products & Services
Men's and women's fashion and lifestyle products

Size
Large Enterprise

Objectives

- **Replace current Excel** based tools with user-friendly interface
- Manage quick and flexible allocation process
- **Integrate** allocation management **with assortment planning** and enable end-to-end planning process
- Determine the appropriate allocation quantities based on store performances and analysis of real time stock
- Execute allocation on **large volumes** of articles at one time
- Trigger allocation management manually or **automatically**
- Perform In-season allocation based on **Forecast**

Solutions

- SAP HANA
- SAP Customer Activity Repository (CAR)
- SAP Assortment Planning
- SAP Allocation Management

Results & Benefits

- Perform assortment planning and allocation management for 50+ stores and 2 distribution centers in North America initially before performing a global roll-out for hundreds of additional stores and many more products
- Plan and manage an assortment for high fashion, seasonal products

End-To-End: SAP Assortment Planning, SAP Allocation Management

SAP Allocation Management: salling group‘s expectations

Bilka

føtex

Netto

Scope or expectations for AMR

- **Workflow**: control from the promotion management to the allocation execution. Who has responsibility for what articles, are the articles ready to be allocated. Will remove local spreadsheets, reduce workload and give overview on progress
- **Capacity management**: today articles are allocated with little control on what capacity the single store has. High risk for under-/over-delivery. With AMR we get control of capacity in a flexible and transparent model that support an optimal allocation
- **UDF**: with AMR we will use the same (forecast-)engine for allocation/push and automatic replenishment/pull. This will give us a better overview of the total order-volume within a category. In the future we will use the same tools for planning (e.g. seasons, store opening/closing etc.) and we will have the opportunity to reflect e.g. cannibalization-effect between allocated and automatic replenished articles

Or put shortly: For Salling Group AMR is “***Promotion driven allocation to support efficient workflow, handle store capacity and use the general forecast engine to optimize allocations***”

salling group

Kim Rovsing Kraglund, Group Director – Business Process Management

Roadmap CAR

SAP CARAB milestones for CAR

Release Roadmap 2020 – 2021+

Current Roadmap, Subject to change

Customer Activity Repository

Area	Q2 2020	Q4 2020	Q2 2021	Q4 2021	2022+
POS Data Transfer & Audit (incl. MSCA)	• Provide the ability to support multiple S/4 HANA • Intraday Inventory support	• Enhance Integration with SAP Marketing Cloud	• Enhance tax integration allowing for segments 04 and 05 • Minor data type changes in TLOGF	• Integration via S/4 HANA on Prem SOAP services • Enhanced transaction traceability (WPUUMS, WPUBON, WPUTAB) • Support for Seasons category • report to display list of stores • Provide the ability to post sales data to S/4 HANA Cloud	• Provide new customizing entry to allowing the ability to remove leading zeros from article No. • Removal of FIORI scaffolding • Add ability to Save as Tile on FIORI applications • Integration with Smart Store
Omnichannel OAA/OPP	**OAA:** • Provide Last Mile integration **OPP:** • New version of price calc. engine (PCE)	**OPP:** • TransactionControlBreakCode • Enforce Multiple Initial (Part 1) • PCE-new version • Support new pricing model in DDF	**OAA:** To be defined based on customer feedback **OPP:** Enforce Multiple Initial (Part 2) Generic Attributes, Potential Promotions(Part1),PCE-new version	**OAA:** To be defined based on customer feedback **OPP:** Adhoc Promotions, Potential Promotions(Part2), Sales Versus Returns, Generic Product,Consumption of customer specific prices,	**OAA**: To be defined based on customer feedback **OPP:** Proration for Mix&Match Discounts, Discount on most expensive, PCE-new version
Demand Data Foundation	• Wholesale sales orders • Goods receipt in Purchase Orders • Report to delete time series data • Product group standardization • Auto-detect similar reference prods	• Additional functionality for data replication (DRFOut) • Multi-channel support for separate selling and fulfillment locations	• Location hierarchy improvements • POFF replication at store level	• Enabling new features for all consuming applications	• Enabling new features for all consuming applications
Unified Demand Forecast	• Intelligent modeling • Sizing Reduction - Refactored database storage design • Modelling with an on-shelf date for slow sellers • Handling of holidays that happen on differing weekdays • UDF UI Improvements	• UDF Cockpit for exception mgmt. • UDF performance improvements based on customer feedback • UDF integration with SAP Replenishment Planning	• Assortment cannibalization • Auto detection for start of variable season • Automatic determination and use of reference items • Multiple promotions on same day • Further Business Exceptions – Base for Cockpit	• Cannibalization in the Promotional forecast • Forecasting targeted offers • What-if forecast traceability • Forecast enhancements for Grocery Assortment Planning • Auto defined Promo cannibal. pairs via product similarity • Extended consid. of selling locations	• Cloud enablement of Demand Forecasting • Cross location/customer cannibalization
Architecture		• Support for Zero Downtime (ZDO)	• Integrate POS Transactional data with the Data Warehouse Cloud and SAC • Integration with Native Storage Extensions • Integration of Data Lifecycle Management for Data Aging	• Support architectural requirements • Reduce dependency on Hana Activation Report	• Support architectural requirements

Thank you.