



consenso

SUCCESSFUL SAP PROJECTS

# Intelligent Replenishment

Increase digital maturity and generate measurable benefits immediately!





Use **INTELLIGENT DISPOSITION**  
to quickly **GENERATE BENEFITS**,  
based on **STANDARD SAP**,  
enriched with **AI**  
and with integrated **REPORTING**.



## consenso Intelligent Replenishment (cIR)

- Optimisation of goods procurement to increase efficiency and cost transparency
- Use of technology and data analysis to optimise inventory, minimise bottlenecks and overstocking
- Better product availability, reduced capital requirements, increased competitiveness and risk reduction
- Our consulting solution is provided to the customer by transport
- The tool is expandable and enables customers to make changes themselves (development know-how recommended)
- No annual licence fees after implementation, additional adjustments can be made at any time

## *Solution elements*



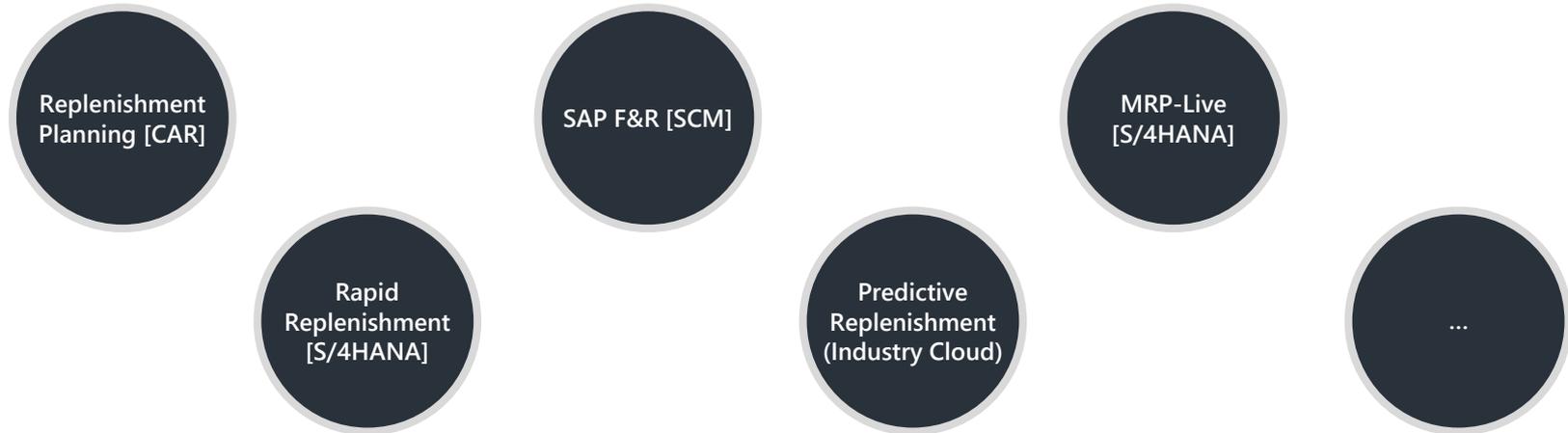


## consenso Intelligent Replenishment (cIR)

- ... relies on S4 standard functionalities, including
  - HANA PAL (Predictive Analysis Library)
  - BRP+ (Business Rule Framework Plus)
  - ISLM (Intelligent Scenario Lifecycle Management)
- The visual processing is done in the Fiori Launchpad
- The development languages used are
  - RAP (RESTful Application Programming Model – SAP S4HANA 1909)
  - Python
- Algorithms
  - Various algorithms, e.g. AutoArima and Prophet, can be integrated via HANA PAL.

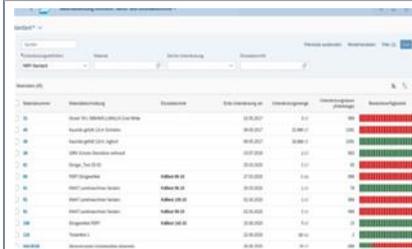
# POSSIBLE SOLUTIONS WITH SAP.

*Challenge: Keeping an overview ...*



# POSSIBLE SOLUTIONS WITH SAP [EXTRACT]

## S/4HANA MRP



- Demand calculation in S/4
- Analysis of MRP runs
- Fine tuning of MRP at master data level
- MRP cockpit for analysing calculations
- Forecast with HANA PAL

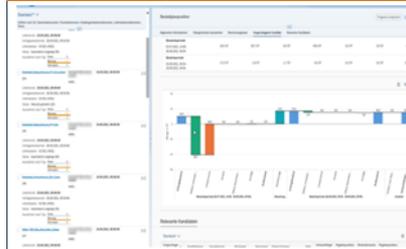
→ **consenso Intelligent Replenishment (cIR)**

## Forecasting & Replenishment



- Separate SCM system
- Solution for the optimisation of internal logistics aimed at reducing
  - excess stock
  - stock gaps
  - manual activities
- High transparency in the logistics chain
- Forecast with UDF component possible

## Replenishment Planning



- Integration in CAR (CARAB 5.0)
- Solution for optimising internal logistics with a focus on total costs in replenishment planning
- Forecast with UDF component
- Integration with SAP F&R for MER scenario

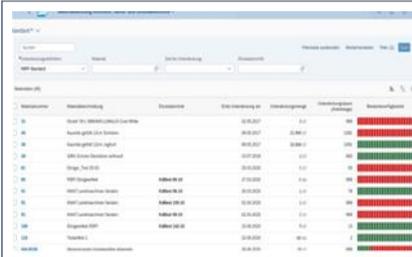
## Predictive Replenishment (Cloud)



- Pure cloud service
- Specialised in the disposition of a DC to suppliers
- Can be connected to a forecast engine

# OUR APPROACH. USE OF THE S/4 STANDARD DISPOSITION

S/4HANA MRP



- Demand calculation in S/4
- Analysis of MRP runs
- Fine tuning of MRP at master data level
- MRP cockpit for analysing calculations
- Forecast with HANA PAL

→ consenso Intelligent Replenishment (cIR)

- **HANA PAL** in S/4HANA is used to determine the forecast of future daily demands.
- Daily calculation and visualisation takes place in **consenso Monitor and Cockpit**. Here, all relevant facts are clearly displayed for the user.
- Pre-defined KPIs provide the user with a **quick** and **reliable overview** of individual stock development and detailed changes. These can be edited and processed directly from the application.
- Speed and reliability through transparency, availability with reduced residual quantities.

→ **Our objective: "Acting with overview"**



consenso Intelligent  
Replenishment



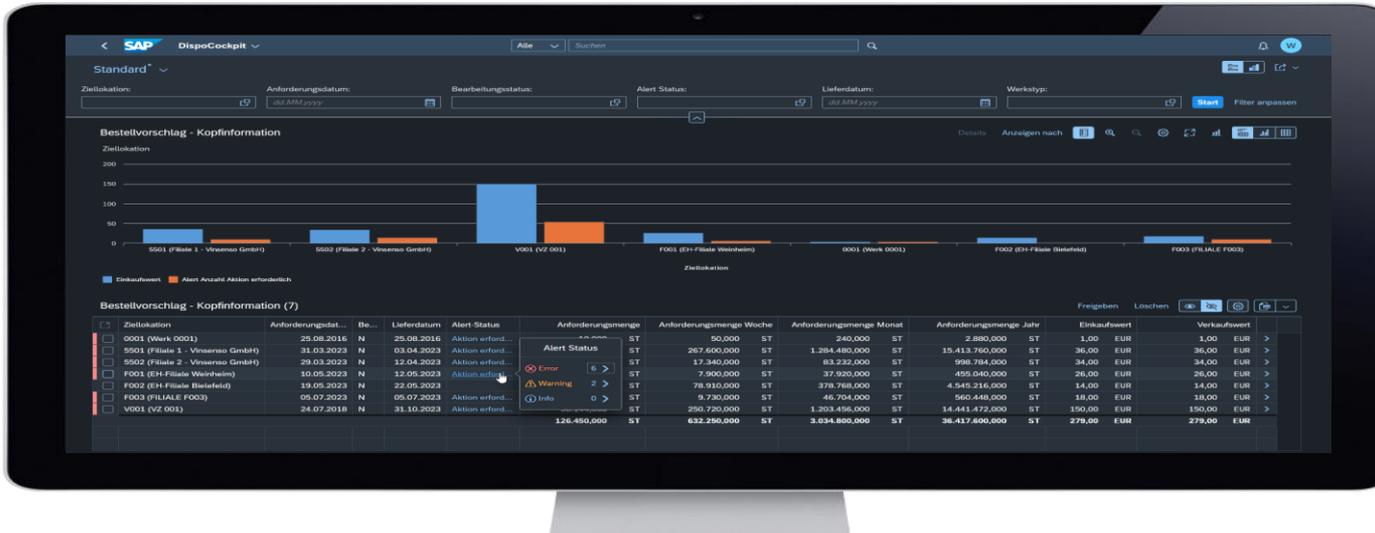
# MONITOR

- Initial screen with comprehensive KPIs displaying procurement-relevant information
- Jumping from graphics to the individual applications enabled
- KPIs can be derived from different objects



# DISPOCOCKPIT HEADER OVERVIEW

- Various KPIs that may be derived from the header information
- Display of all order proposals bundled according to their target location
- Calculated quantity for daily, weekly, monthly and annual orders



# DISPOCOCKPIT POSITION OVERVIEW

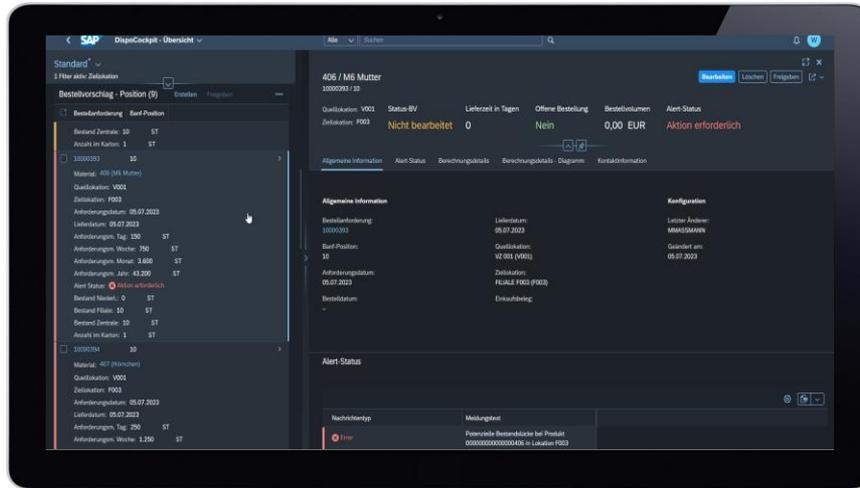
- Position details with information on stocks in the target location or the supplying plants
- Alerts indicate the need for action

The screenshot displays the SAP DispoCockpit - Übersicht interface. The table below represents the data shown in the interface:

Bestellanforderung	Barf. Position	Material	Quelloklokation	Ziellokation	Anforderungsdatum	Lieferdatum	Anforderungsm. Tag	Anforderungsm. Woche	Anforderungsm. Monat	Anforderungsm. Jahr				
10000392	10	405 (Luftfilter)	V001	F003	05.07.2023	05.07.2023	30	ST	150	ST	720	ST	8.640	ST
Alert Status: <span style="color: orange;">⚠</span> Warnung														
Bestand Niederl.: 0														
Bestand Filiale: 10														
Bestand Zentrale: 10														
Anzahl im Karton: 1														
10000393	10	406 (M6 Mutter)	V001	F003	05.07.2023	05.07.2023	150	ST	750	ST	3.600	ST	43.200	ST
Alert Status: <span style="color: red;">🔴</span> Aktion erforderlich														
Bestand Niederl.: 0														
Bestand Filiale: 10														
Bestand Zentrale: 10														
Anzahl im Karton: 1														
10000394	10	407 (Hörnchen)	V001	F003	05.07.2023	05.07.2023	250	ST	1.250	ST	6.000	ST	72.000	ST
Alert Status: <span style="color: red;">🔴</span> Aktion erforderlich														
Bestand Niederl.: 0														
Bestand Filiale: 100														
Bestand Zentrale: 100														
Anzahl im Karton: 1														
10000395	10	408 (Bremscheibe)	V001	F003	05.07.2023	05.07.2023	6	ST	30	ST	144	ST	1.728	ST
Alert Status: <span style="color: green;">🟢</span> Info														
Bestand Niederl.: 0														
Bestand Filiale: 2														

# DISPOCOCKPIT POSITION DETAILS

- Calculation details for the order proposal
- Graphical visualisation of product-related KPIs





**Detailed Information**



# COMPREHENSIVE DATA CATALOGUE AND KPIs

- All company-relevant information can be displayed in the context of disposition via the various master data objects and KPIs
- The catalogue can be individually adapted, expanded or supplemented

KPI	Launchpad oder Kopf
Gesamt Einkaufswert	Launchpad + Kopf
Gesamt Verkaufswert	Launchpad + Kopf
Umsatzverlust nicht Bestellung	Launchpad + Kopf
Alertcluster	Launchpad + Kopf + Position
Offene Lieferung	Launchpad + Kopf
Verarbeitungsstatus	Launchpad
Überfällige Bestellung	Launchpad + Kopf
Automatisierungsquote	Launchpad
Anzahl Banfpositionen	Launchpad + Kopf
Anzahl Ladenhüter / Lagerhüter	Launchpad + Kopf
Top Artikel	Launchpad + Kopf
Bestellvorschlagsvolumen Gesamt	Launchpad
Absatzentwicklung + Prognose	Launchpad
Bestellvolumen	Launchpad
Drohender Lieferverzug	Launchpad
Out-Of-Stock Rate Ziellokation	Launchpad

Extract

# ALERTING (1|2)

- The main advantage of consenso's Intelligent Replenishment framework is precise forecasting, enabling a large proportion of order proposals to be released automatically.
- During the MRP run, exceptions are generated alongside the order proposals, which are displayed visually to the MRP controller.
- These predefined exceptions are generated at order proposal item level and mean that only those order proposals with exceptional items can be viewed and manually released by the MRP controller on the order day (exception instead of rule processing).
- Exceptions can relate to
  - an order proposal or an order proposal item,
  - a location product / location,
  - inconsistent data (e.g. missing master data information),
  - technical problems (e.g. during data provision) or
  - other demand influencing factors.

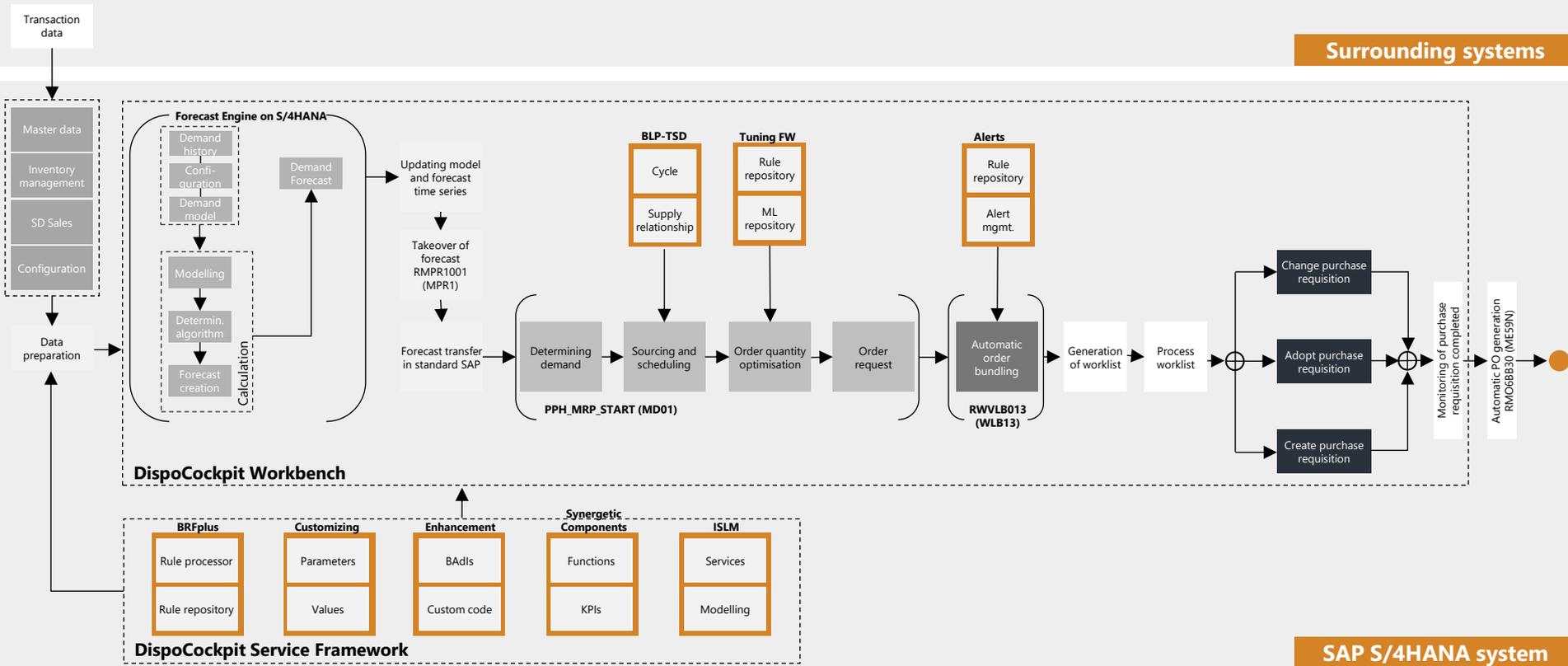
# ALERTING (2|2)

- In principle, a distinction can be made between technical alerts and business process alerts.
- Depending on the criticality, a gradation of importance can be made (error, warning, info) and displayed in different colours.
- Both the definition and the criticality are mapped via a set of rules.
- Alerts can be migrated from the current solution.
- An alert can be triggered by the following circumstances:
  - Potential stock shortage (BP alert – error)
  - Zero stock situation (BP alert – error)
  - Impending excess stock (BP alert – warning)
  - Restriction not fulfilled (BP alert – warning)
  - Planning calendar could not be read (TECH alert – error)
  - High proportion of warranty cases in the last 6 months (BP alert – info)

# PROCESS FLOW HANA PAL

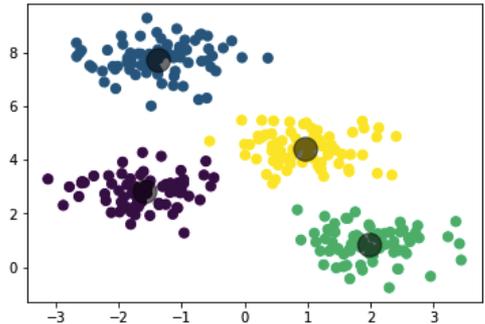
Surrounding systems

SAP S/4HANA system



# FORECAST OPTIMISATION (1|3)

- **Classification** of the so-called "**demand type**" of each article into one of the four scientifically based categories
- Presentation of the results in the form of visualisations of the categorised articles. Data preparation, analysis and visualisation are carried out with Python
- Analysis of historical demand patterns to determine the optimal approach
  - Data preparation
  - Data analysis
  - Visualisation of results
- Visualisation of the results and corresponding recommendations
- Determination of optimisation options



# FORECAST OPTIMISATION (2|3)

## SMOOTH DEMAND

- » Continuous sales with little variance
- » High forecast accuracy

## ERRATIC DEMAND

- » Continuous sales with high variance
- » Average forecast accuracy (optimisation)

## INTERMITTENT DEMAND

- » Sporadic sales with little variance
- » Average forecast accuracy (optimisation)

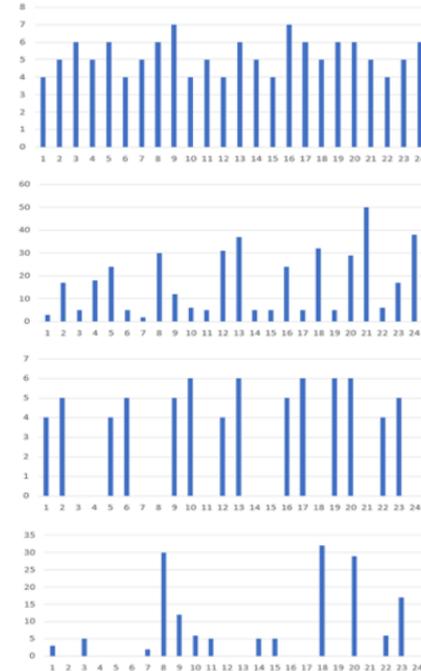
## LUMPY DEMAND

- » Sporadic sales with high variance
- » Low forecast accuracy (optimisation)

Variability of demand times

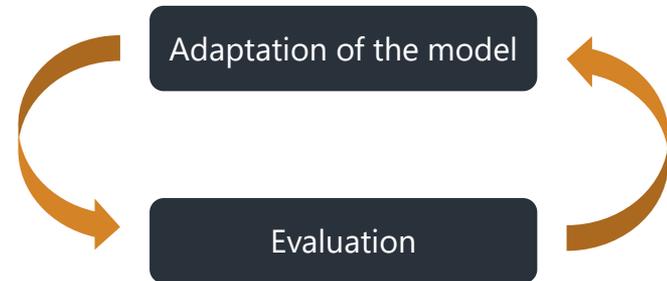
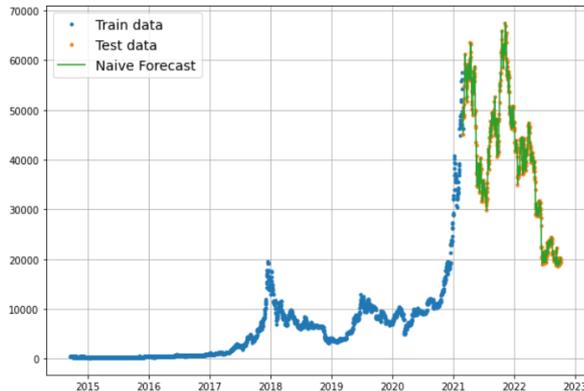


Variability of the demand volume



# FORECAST OPTIMISATION (3|3)

- The forecast quality can be evaluated with a hold-out forecast
- The model is not trained up to the current point in time, but up to a freely selectable point in time in the past
- A forecast is then generated for historical data
- This forecast can be compared with actual data
- The effects of adjustments to the model can be analysed





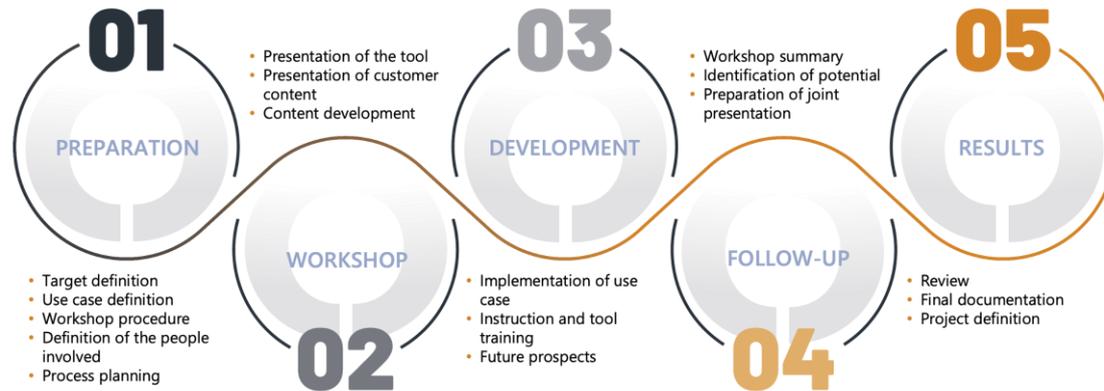
Our Offer



# OUR OFFER

## Proven benefit in 6 weeks

- Added value at the end of the process chain is greatest when the benefits of a business model are already known before project development and there is certainty that the new product will address customer needs.
- consenso's proof of value offers both technical feasibility and added business value.
- We work on the basis of jointly defined objectives to be achieved with the solution in terms of quality, efficiency, costs, revenue and much more.
- The results are jointly evaluated based on the formulated KPIs.



# OUR IMPLEMENTATION METHODOLOGY

- consenso Intelligent Replenishment (cIR) includes:
  - adoption of the framework (Monitor + Cockpit)
  - optimisation and transformation of the forecast into HANA PAL
  - individualisation BRF+ (including customizing, alerting, calculation logics)
- The introduction is carried out by proven experts:
  - a consenso SAP Consultant
  - a consenso Data Scientist
  - a consenso SAP Code Specialist
- The implementation time frame is usually 4-6 weeks after approval and confirmation



*Thank you very much!*

**consenso**

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