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Americas' SAP Users' Group

Success story of the world's biggest SAP IBP implementation @Syngenta

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Nikhil Balkundi, Senior Industry Principal, Infosys
Session ID # ASUG 82700

About the speakers

Matt McCall

- Global Integrated Business Planning Lead at Syngenta
- Canadian, married with 2 children and currently living in Basel
- 18 years of business operations experience in international program management, business planning and forecasting process design, supply chain management, supply planning, and customer service roles
- Professional French Horn Orchestral Musician

Nikhil Balkundi

- Sr. Industry Principal, Infosys. Currently leading SAP IBP Practice at Infosys
- Indian national, happily married, living in Basel, Switzerland for last 12 years. Supply chain consulting experience for 20 years
- Avid Tennis and Cricket fan. Watched all Grand Slam Finals and last 3 cricket world cups in stadium

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Key session objectives

1. Share experience of global implementation of IBP S&OP and demand in Syngenta

2. Challenges faced and how we overcame them

3. Important lessons learnt

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Agenda
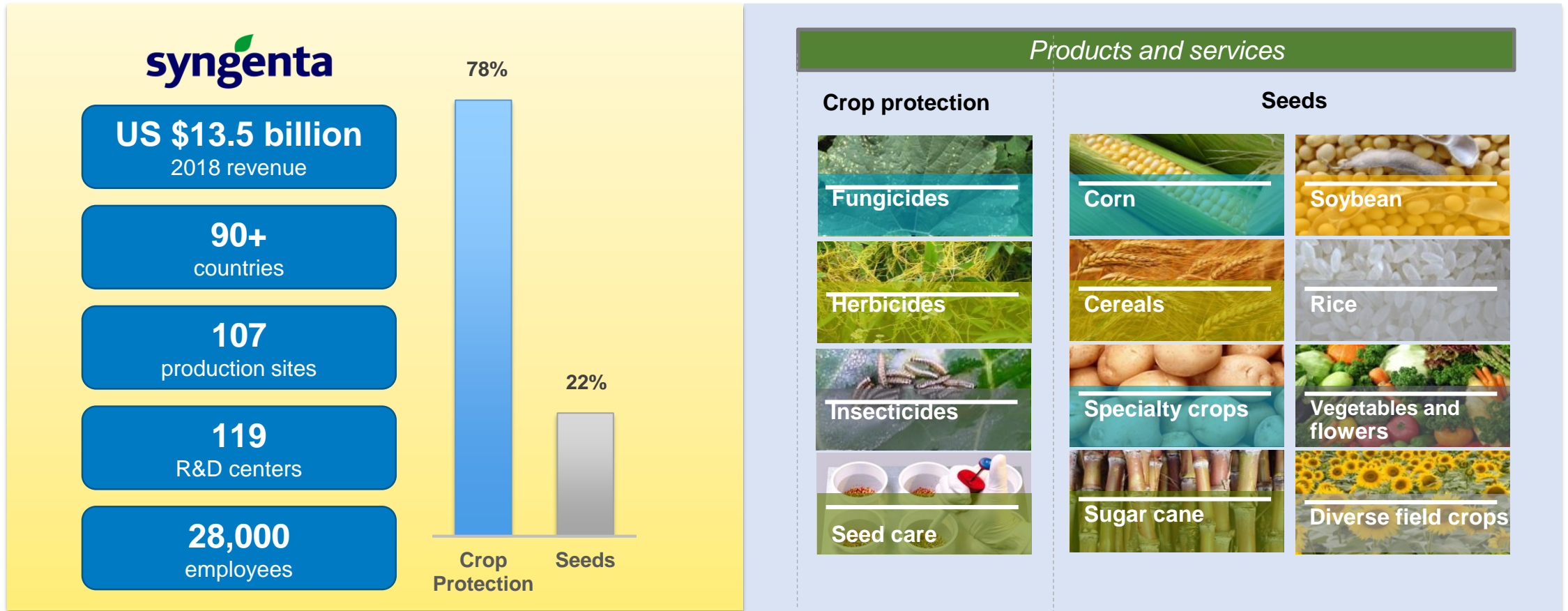
- About Syngenta

- IBP program business case and roadmap

- Target operating model definition

- Technical design and challenges faced

- Business benefits delivered

- Lessons learnt and road ahead

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About Syngenta

syngenta

US $13.5 billion	2018 revenue
90+	countries
107	production sites
119	R&D centers
28,000	employees

78% — Crop Protection
22% — Seeds

Products and services

Crop protection
- Fungicides
- Herbicides
- Insecticides
- Seed care

Seeds
- Corn
- Cereals
- Specialty crops
- Sugar cane
- Soybean
- Rice
- Vegetables and flowers
- Diverse field crops

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Syngenta business landscape

2 divisions – Seeds and Crop Protection (CP), 5 regions, 17 sales territories and 60 commercial units across 100 countries
Business models: B2B, B2C, smallholder, high-channel distribution, agency, and consignment

Supply complexity:

- Long lead times (>12 months for Active Ingredients, 18 months for seed crops)

- Global supply chains for CP, regional/local production networks, 3P tolling (107 sites)

- Capacity – campaigned production, competition in-season

- Short in-season transportation and customer demand lead time

Demand complexity:

- High seasonality driven by crop cycles

- High demand uncertainty from external variables (weather, pest control, regulatory)

- High cost of lost sales and opportunities

- Short product lifecycles (mainly in Seeds)

- Large product portfolio

High forecast bias + low forecast accuracy = Poor inventory efficiency + poor product allocations and lost sales

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Syngenta commercial system landscape

Needed better visibility into demand from commercial units. Fragmented local tools, data and processes led to inefficiencies and poor quality output to S&OP

IT landscape complexity

- 28+ local forecasting tools connected to ERPs and offline Excel files

- 5 ERPs covering the CP and seeds business

- APO used as planning system for CP business
  Several local tools/Excel sheets for the seeds business

- Several local CRM systems used per country

- Multiple financial systems for CP and seeds business with close to 50 currencies

Data challenges

- No single point of truth for the commercial organization structure
  Data duplication in local systems

- Extracting 25+ data elements from ERP systems to drive process

- No single point of truth for actuals valid across globe and business lines as country operations would trust local Excel files used

- Lack of a common master data source as local systems would use own master data

- Multiple ERPs used for same countries

Commercial system landscape

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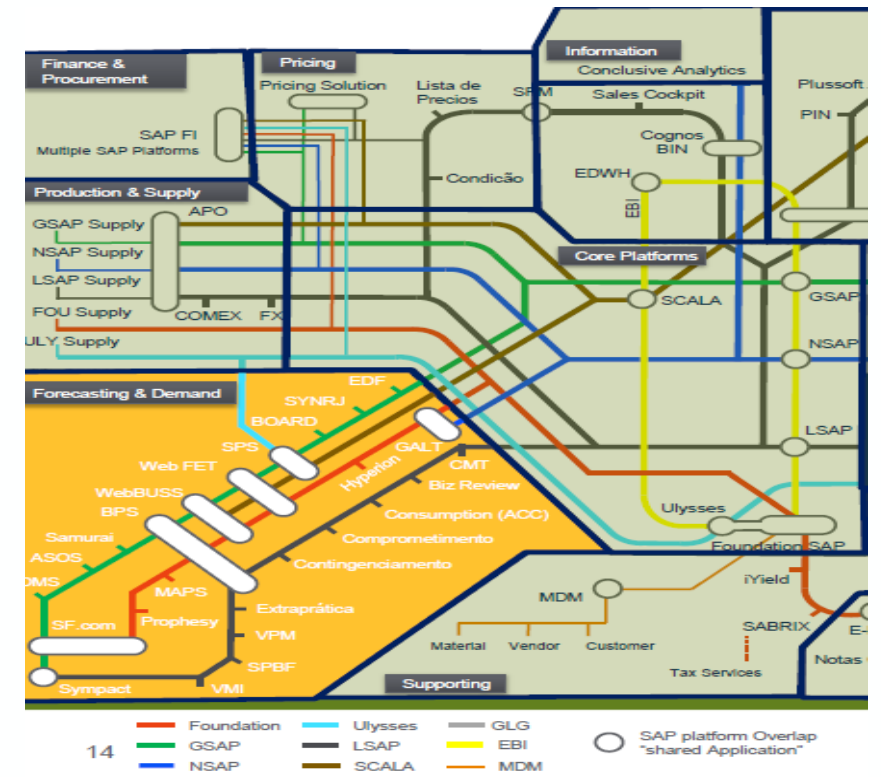
Syngenta IBP program: Business case

Key drivers for the business case

- Establish a cross-functional and collaborative process that delivers consensus-driven unconstrained and constrained business forecasts in both volume and value supported on SAP IBP platform

- Manage the business with an integrated view of demand and supply to maximize total value

- Reduce IT maintenance costs of more than 28 local forecasting systems

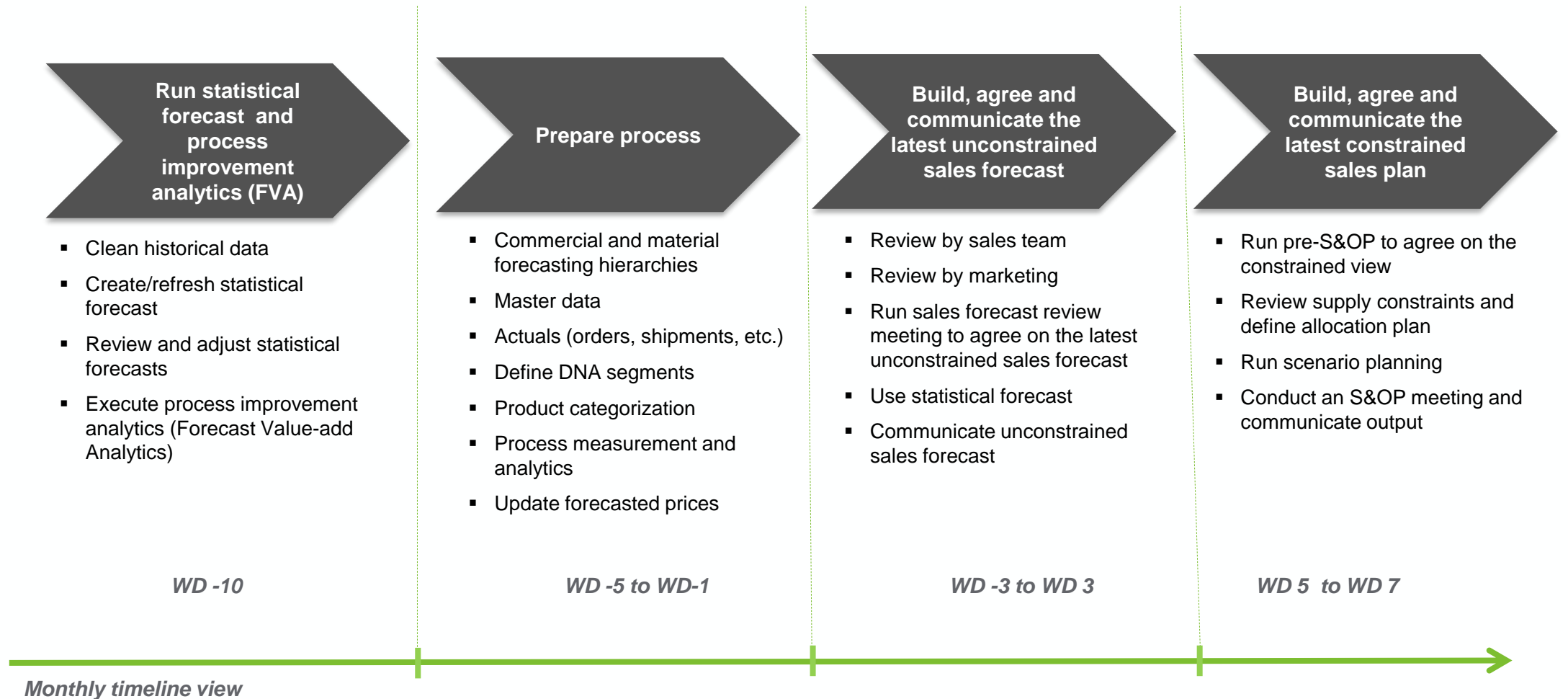- Increase productivity and efficiency of planning activities

Specific value contribution in the benefits case

Improve visibility and transparency
- Increase the efficiency of the S&OP by dissolving the boundaries among functional teams within a country/geographies
- Increase collaboration among the main functional areas involved in S&OP (sales, marketing, supply, and finance) with own opinion lines

Reduce forecast bias and improve accuracy
- Use statistical forecast to minimize manual effort, improve overall forecast accuracy and reduce forecast bias
- Enable appropriate and measured forecast effectiveness
- Forward focus on profitable growth

Establish business metrics
- Reduce inventory write-offs
- Improve working capital (inventory) efficiencies
- Improve customer service levels and experience

Harmonize processes and tools
- Create harmonized and efficient sales forecasting, demand planning and demand management processes
- Improve data vs silo processes followed in commercial units
- Create a single, integrated global tool **for the CP and seeds business process** to drive the volume and financial plans across all product lines for global visibility
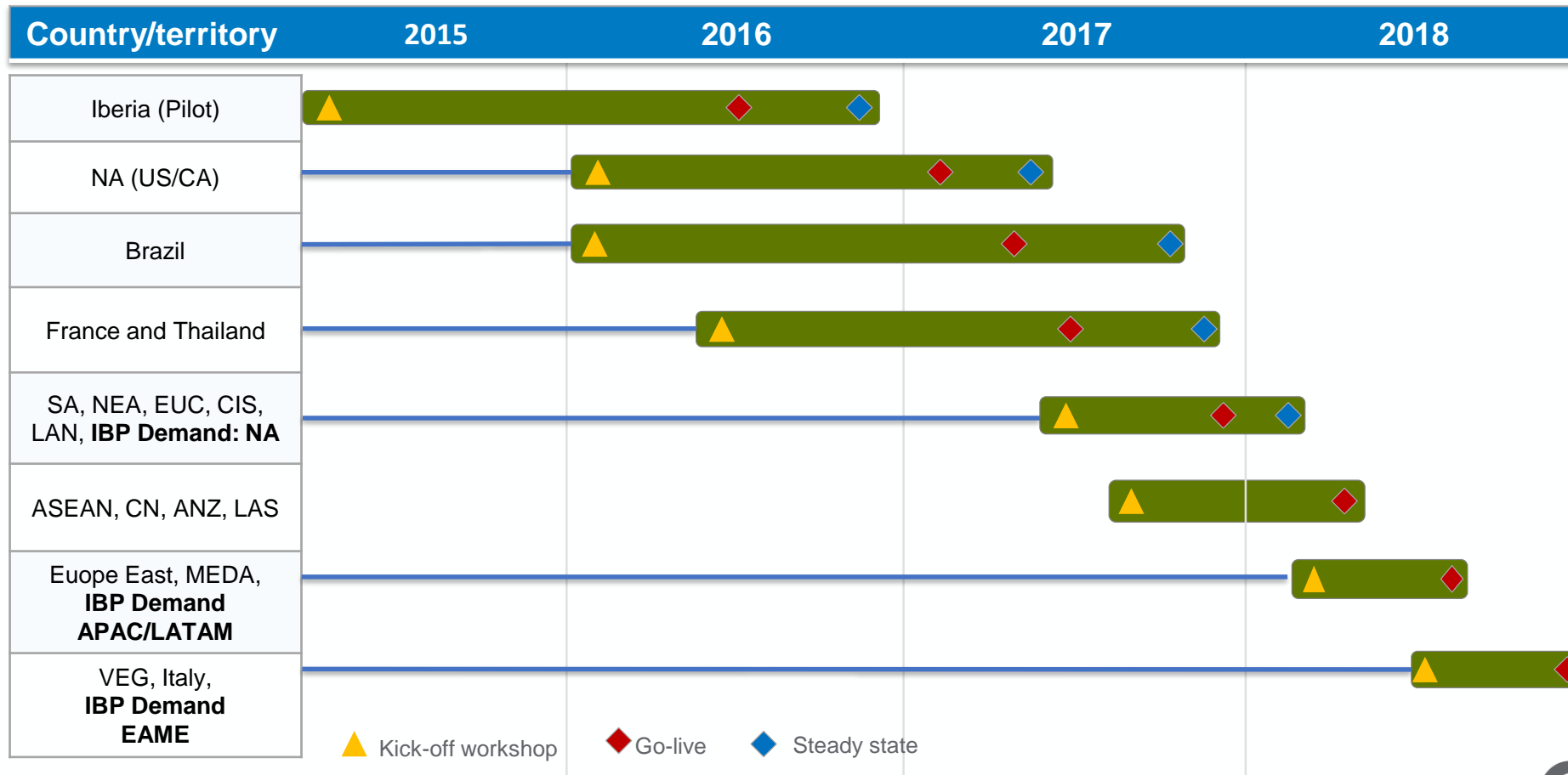
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Target operating model: Definition

Category	Outcomes Expected

Data

Multiple opinion line per function
- Facilitate collaboration between sales and marketing. Capture, track and analyze different views
- Present every user group with a planning view customized to their role for simple, user-friendly and focused views of data

- **Eliminate forecast bias**
- **Faster collaboration**

Analytics

Scenario planning
- Improve scenario planning with baseline, demand risks and opportunities in volume/value, events
- Automatically translate volumes into financials and overviews (financial planning) to assess impact of price change on sales

- **Arrive at most profitable case by checking all scenarios**
- **Maximize business outcomes**

People

Organization competency
- Demand Planner role: Support business forecasting process at the commercial unit level across product lines
- Demand Manager role: Ensure S&OP decision making and constrained demand plan agreement

- **Establish a consistent and sustainable process**

Automate

Statistical process set-up
- Automate forecasts based on historical data
- Identify and implement the best-fit statistical forecast method

- **Automate the forecasting process**

Outcomes

KPI-based measurements
- Forecast errors to check difference between forecast and actual sales for given period
- Forecast MAPE to measure accuracy
- Forecast bias to check patterns of under/over forecasting

- **Have the right set of process measurement KPIs**

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IBP monthly process design facilitated by IBP SOP & demand modules across the enterprise

Run statistical forecast and process improvement analytics (FVA)

- Clean historical data
- Create/refresh statistical forecast
- Review and adjust statistical forecasts
- Execute process improvement analytics (Forecast Value-add Analytics)

Prepare process

- Commercial and material forecasting hierarchies
- Master data
- Actuals (orders, shipments, etc.)
- Define DNA segments
- Product categorization
- Process measurement and analytics
- Update forecasted prices

Build, agree and communicate the latest unconstrained sales forecast

- Review by sales team
- Review by marketing
- Run sales forecast review meeting to agree on the latest unconstrained sales forecast
- Use statistical forecast
- Communicate unconstrained sales forecast

Build, agree and communicate the latest constrained sales plan

- Run pre-S&OP to agree on the constrained view
- Review supply constraints and define allocation plan
- Run scenario planning
- Conduct an S&OP meeting and communicate output

WD -10

WD -5 to WD-1

WD -3 to WD 3

WD 5 to WD 7

Monthly timeline view

IBP Program: Roadmap for S&OP and demand

RFP and tool selection for best architectural fit with flexibility

Pilot implementation and development of global process design based on Gartner-supported S&OP best practices

Go-live for major markets

Industrialized rollouts with cluster of countries going live every 4 months

Country/territory	2015	2016	2017	2018
Iberia (Pilot)				
NA (US/CA)				
Brazil				
France and Thailand				
SA, NEA, EUC, CIS, LAN, **IBP Demand: NA**				
ASEAN, CN, ANZ, LAS				
Euope East, MEDA, **IBP Demand APAC/LATAM**				
VEG, Italy, **IBP Demand EAME**				

▲ Kick-off workshop   ◆ Go-live   ◆ Steady state
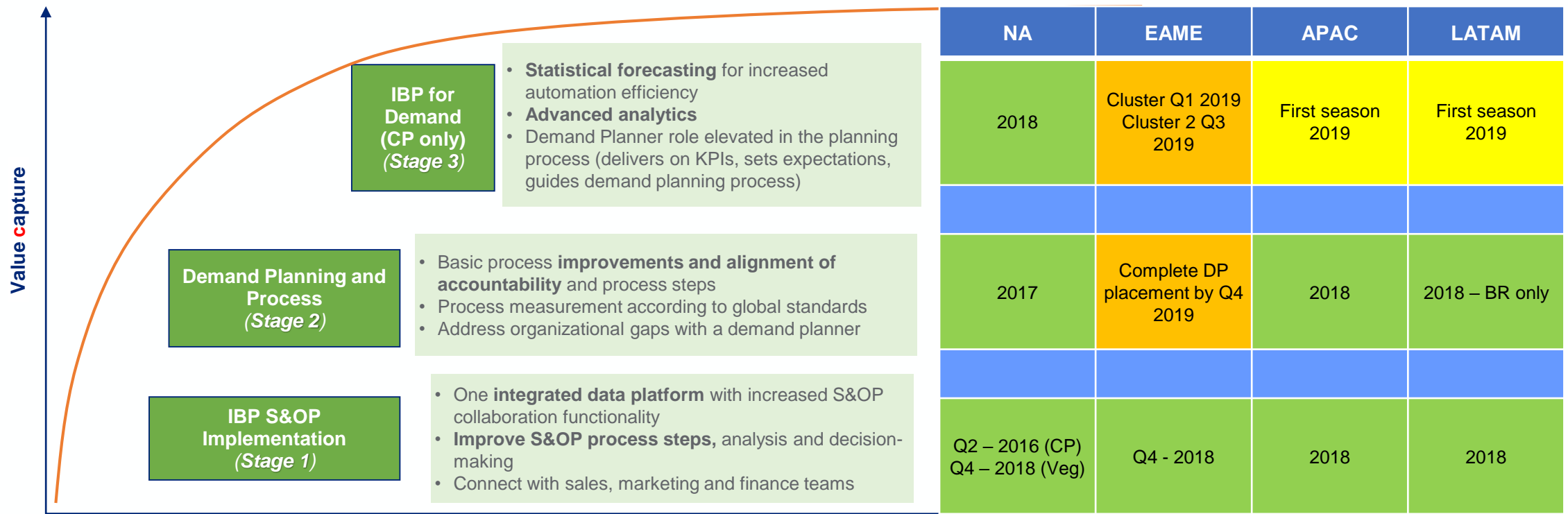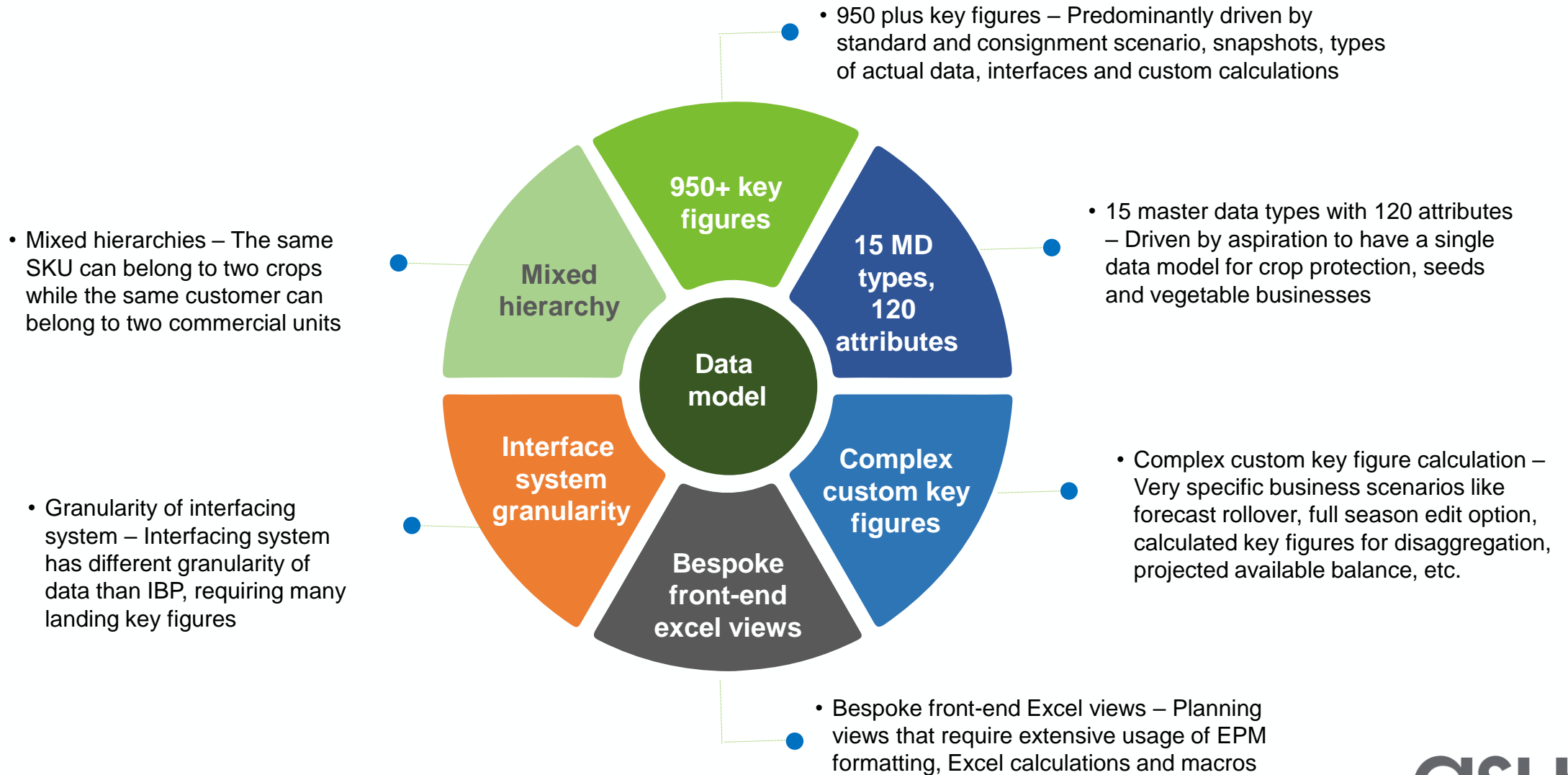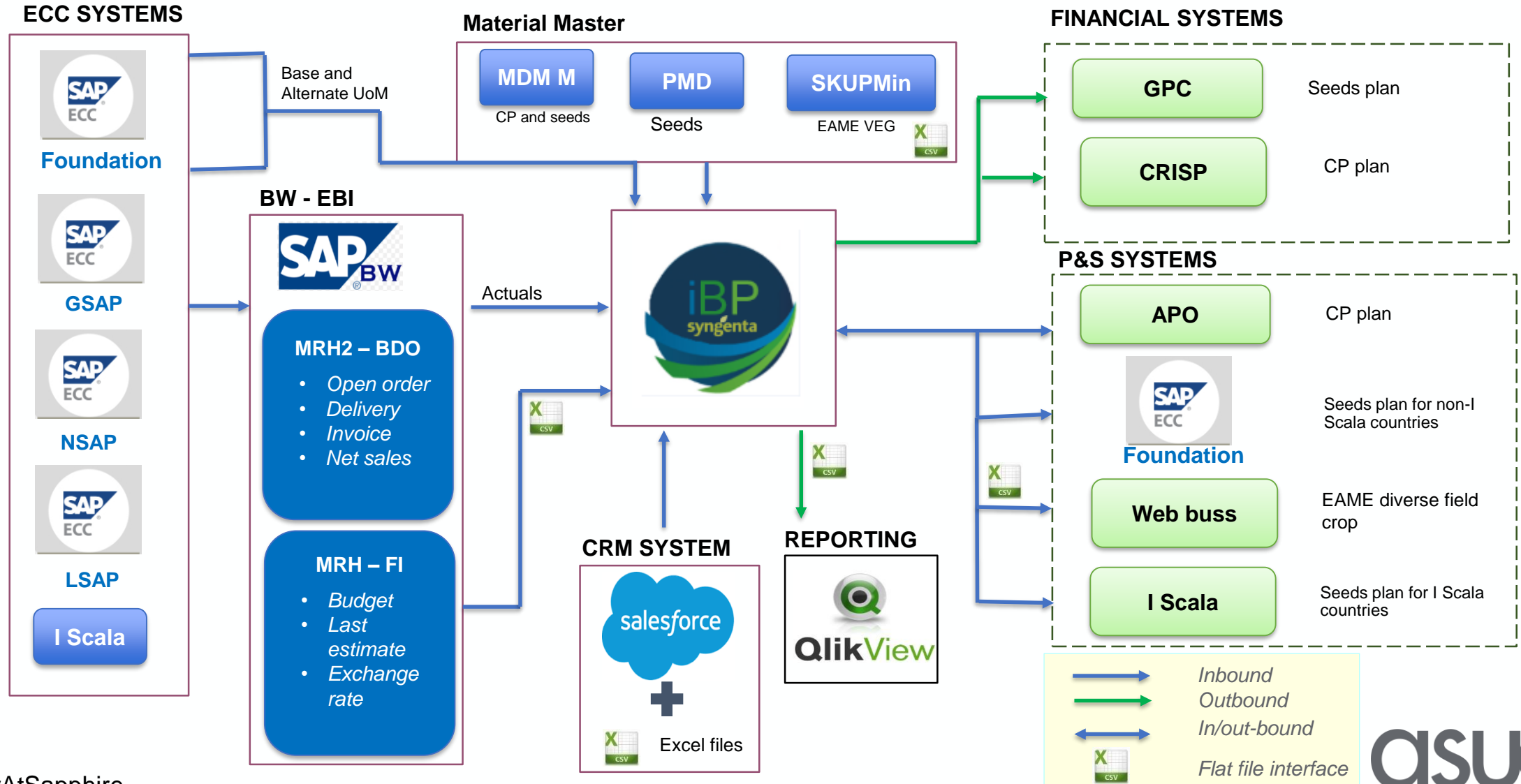
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Where are we in our IBP implementation journey

- Over 90 countries, 5 regions – CP, L&G, field crop seeds and vegetable businesses
- Nearly 500,000 planning combinations forecasted in IBP SOP for a single planning area
- Consolidation of 28 S&OP forecast platforms/processes into 1 global solution and process
- More than 1500 IBP SOP users with almost 200 key users (demand planners and S&OP managers)

		NA	EAME	APAC	LATAM
IBP for Demand (CP only) *(Stage 3)*	• **Statistical forecasting** for increased automation efficiency • **Advanced analytics** • Demand Planner role elevated in the planning process (delivers on KPIs, sets expectations, guides demand planning process)	2018	Cluster Q1 2019 Cluster 2 Q3 2019	First season 2019	First season 2019
Demand Planning and Process *(Stage 2)*	• Basic process **improvements and alignment of accountability** and process steps • Process measurement according to global standards • Address organizational gaps with a demand planner	2017	Complete DP placement by Q4 2019	2018	2018 – BR only
IBP S&OP Implementation *(Stage 1)*	• One **integrated data platform** with increased S&OP collaboration functionality • **Improve S&OP process steps,** analysis and decision-making • Connect with sales, marketing and finance teams	Q2 – 2016 (CP) Q4 – 2018 (Veg)	Q4 - 2018	2018	2018

Value capture

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Technical design – IBP

- 950 plus key figures – Predominantly driven by standard and consignment scenario, snapshots, types of actual data, interfaces and custom calculations

- 15 master data types with 120 attributes – Driven by aspiration to have a single data model for crop protection, seeds and vegetable businesses

- Complex custom key figure calculation – Very specific business scenarios like forecast rollover, full season edit option, calculated key figures for disaggregation, projected available balance, etc.

- Mixed hierarchies – The same SKU can belong to two crops while the same customer can belong to two commercial units

- Granularity of interfacing system – Interfacing system has different granularity of data than IBP, requiring many landing key figures

- Bespoke front-end Excel views – Planning views that require extensive usage of EPM formatting, Excel calculations and macros

Central diagram labels: Data model (center), 950+ key figures, 15 MD types, 120 attributes, Complex custom key figures, Bespoke front-end excel views, Interface system granularity, Mixed hierarchy

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Technical design – integration

# Top 5 challenges during implementation

After the initial go-lives in 2017, several challenges arose, posing hurdles for future rollouts

Performance: More than 70% users reported performance issues. It was a challenge to analyze issues between machines, networks, etc. To ensure continuous iterative testing, it was recommended to have 3MBPS internet speed and 8GB RAM for laptops as well as network/laptop upgrades scheduled before go-live dates.

Scalability: Users in one part of the globe experienced poor performance for 'Save/Simulate' when batch jobs/copy operators were being run in other regions. Our action plan included SAP senior management for a short/mid/long term improvement with most issues being resolved with 1708 beta version released to Syngenta.
Design simplification in data model : Lifted the lowest level of data model from customer to commercial unit -1 level.
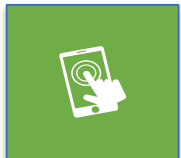
Pioneers in integration: Almost first in every integration. Syngenta was the first instance where SAP IBP was connected directly to APO, SFDC and SAP CRM systems. Outbound integration to the ECC system was done for the first time at Syngenta. Challenges faced during technical integration were resolved with SAP support and these resolutions are now standard OSS notes.

IBP Demand algorithms: ABC/XYZ operators, forecast accuracy lag calculation, triple exponential smoothening/best-fit were co-developed as part of the Syngenta project. There was an active co-innovation forum with SAP where new features and enhancements were requested on SAP IBP platform. Several of these requests raised during program implementation have been included by SAP in later IBP releases.
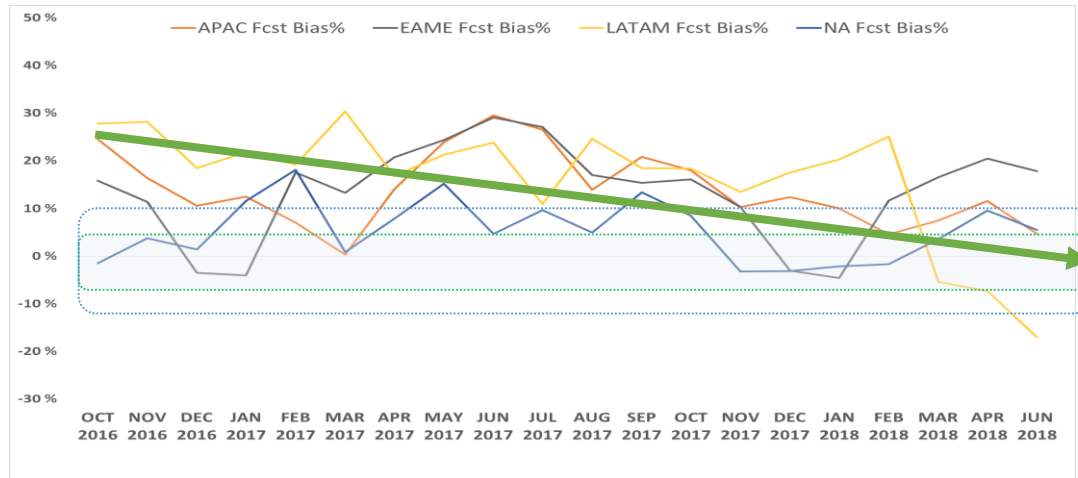
Complex supply optimizer rules: Specific business requirements for product substitution, delay and non-delivery fulfilment.

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Business Benefits Delivered

Forecast Bias: 42% reduction in positive forecast bias COGS error 2016 – 2018

Forecast Bias

Early Process Adopters drive benefits

Territory	Average BIAS % over 12 Months (3 Month Agg/Lag Metric)			
	Before IBP	IBP year 1	IBP year 2	IBP year 3
IB	-20 %	-7.7 %	-5.2 %	-5 %
NA	5.6 %	7.3 %	2.6 %	
BR	25 %	27 %	14.3 %	
FR	26 %	18 %		
SA	29 %	8.3 %		

Forecast Accuracy: Positive trend (+5%) – Statistical adoption key driver for improvement

Forecast Accuracy
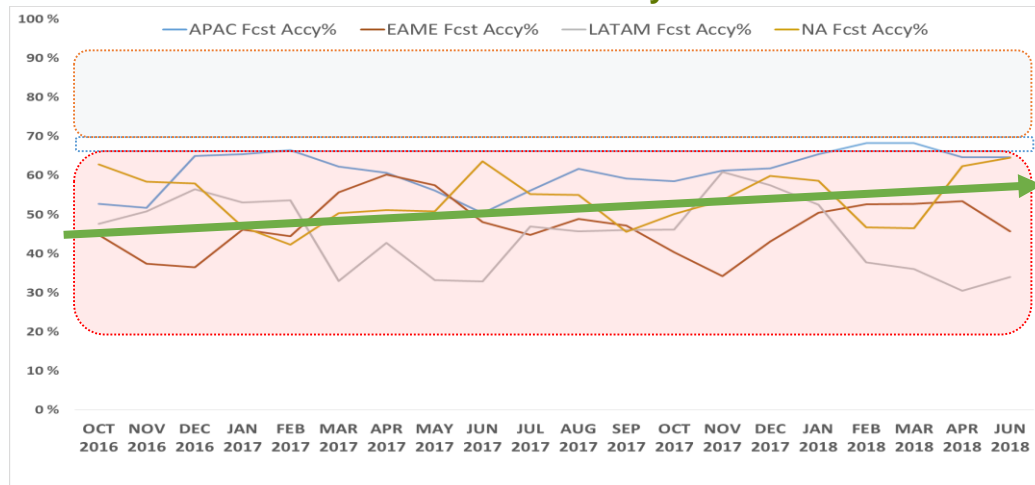
Statistical Forecast Process Adoption

NA 2018 season	LATAM & APAC – pilot 2019
Fit in 30% CP portfolio	Fit for use in 25% CP Portfolio
8% improvement in Accuracy 9% Bias reduction 17% reduction in Lost sales +90 man hours efficiencies	Early stage focused on driving adoption and use in process for accuracy & bias improvement and time savings

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Key lessons from the IBP implementation

Get senior management support to steer the business transformation globally and locally

Start with a pilot covering most of the diverse market scenarios and scale up in the biggest and influential design markets for further global rollouts

Ensure strong design governance because, as the rollout progresses, the decision of what should/should not remain in IBP at process/technical levels becomes challenging based on the local country requirements

Create a stable ERP and CRM landscape before implementing IBP since implementing both simultaneously is challenging. A stable ERP landscape can help in providing production data for user acceptance testing

Conduct data quality checks to discover early dependency and discipline on master and transactional data quality. Though IBP is a demand-driven project, higher dependency on supply and finance process and data influences the success of the implementation

Collaborate and co-innovate with SAP to share business requirements as well as prioritize/influence/gain an early view of the development of new features. Several requirements raised during program implementation have been included by SAP in new IBP releases.

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# The road ahead

Short term plan

- Create an automated master data and planning combination
- Schedule automation using Redwood
- Introduce web UI and process management
- Use dashboards and analytics

Medium term plan

- Use statistical forecasting to automate processes
- Use time series analysis and product categorization
- Incorporate machine learning-based forecast algorithms and gradient boosting
- Develop data-driven demand planning roles and capabilities
- Include assumption-based planning and events management in IBP

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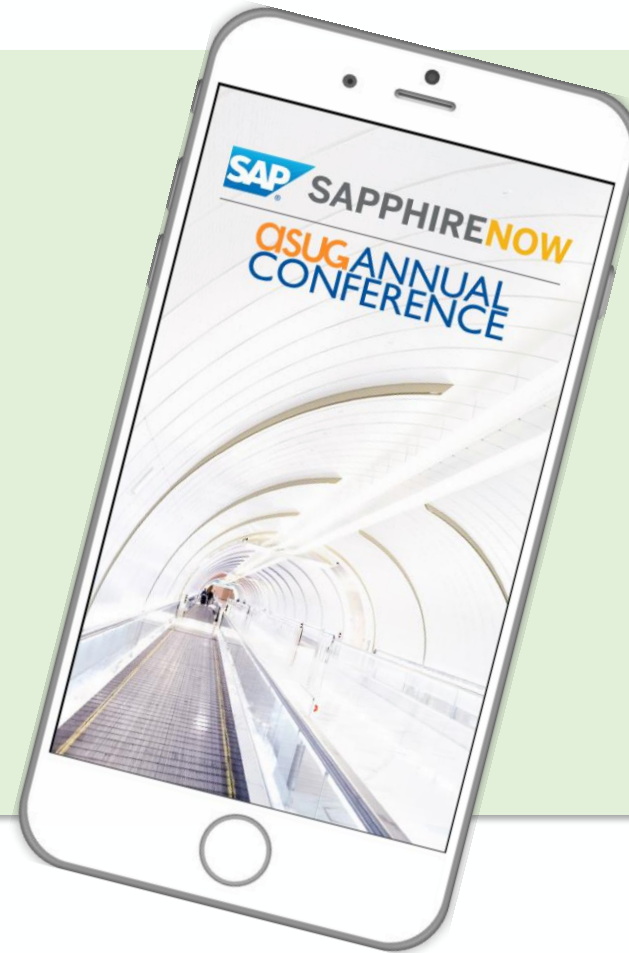
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Presentation materials

Access the slides from 2019 ASUG Annual Conference here:
http://info.asug.com/2019-ac-slides

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Q&A

For questions after this session,
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