

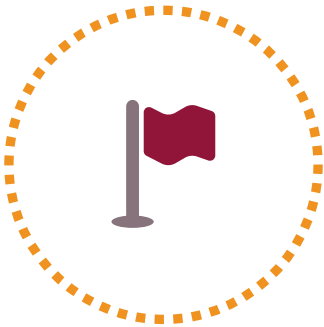


# PILOT ML FORECASTING

Go/NoGo – January 2022

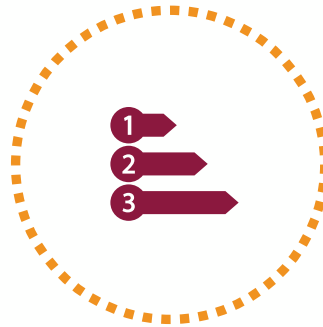
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# MEETING OBJECTIVES



Share progress in each project stream

- ▶ Data
- ▶ Architecture
- ▶ ML results



Share a first version of the new monthly forecasting process

- ▶ Monthly process
- ▶ Decision making matrix



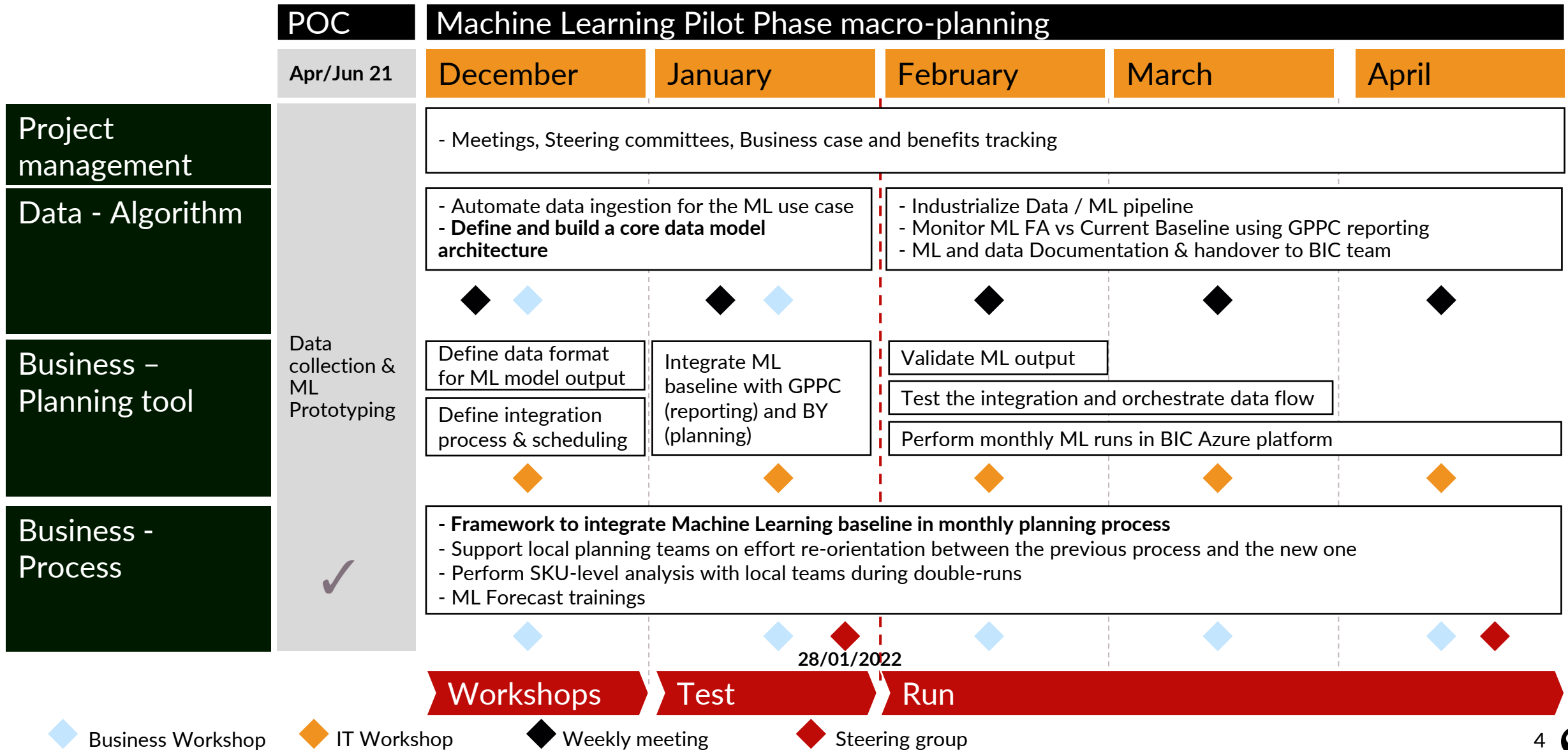
Confirm Go / No Go decision for pilot phase

# AGENDA

- ▶ **Planning**
- ▶ Project objectives
- ▶ Machine learning input data
- ▶ Forecasting process with machine learning
- ▶ Machine learning results
- ▶ Next steps



# PILOT PHASE MACRO-PLANNING



# AGENDA

- ▶ Planning
- ▶ **Project objectives**
- ▶ Machine learning input data
- ▶ Forecasting process with machine learning
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# PILOT PHASE OBJECTIVES



## Data pipeline industrialization

- ▶ Define and build a core data model architecture
- ▶ Automate data ingestion for the ML use case
- ▶ Perform automated ML runs each month



## Sell-in Machine Learning Forecast

- ▶ Propose a Machine Learning baseline to demand planning teams
- ▶ Optimize Machine Learning results, using a maximum of performant data sources



## Statistical layer and business alerts definition

- ▶ Combine a performant ML baseline, with a robust statistical layer
- ▶ Define a "Machine Learning vs Statistical layer decision making matrix"



## Forecast Process

- ▶ Secure ML forecast adoption by global and local demand planning teams
- ▶ Perform training sessions

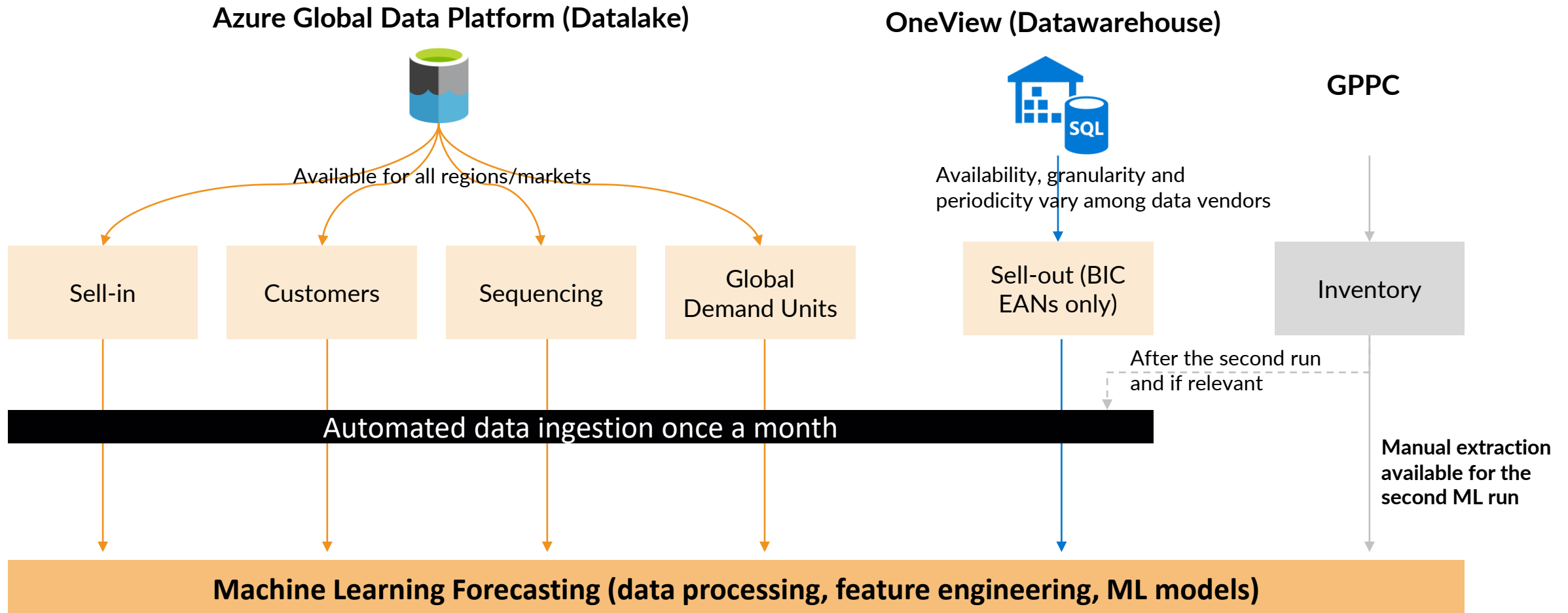


# AGENDA

- ▶ Planning
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# GLOBAL ARCHITECTURE FOR ML FORECASTING

Data architecture built within BIC's Azure subscription ready to be used for future roll-outs.



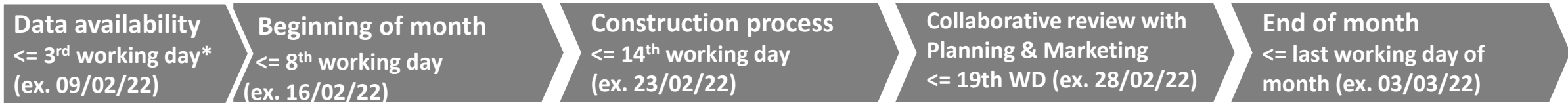


# AGENDA

- ▶ Planning
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# PROPOSED FORECASTING PROCESS AS DISCUSSED WITH DEMAND PLANNING TEAM

\*BIC Calendar



## Actors

Global demand planning or Data teams



Automated ML solution



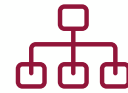
Global planning teams



Local planning and Sales & Marketing teams



Automated ML solution



## Actions

- ▶ Automated data ingestion except for Inventory
- ▶ Extract month end inventory data from GPPC

- ▶ Machine Learning run (18-month horizon)
- ▶ Automated forecasts file creation (to be integrated with GPPC)
- ▶ KPI calculation in GPPC

- ▶ ML Baseline
- ▶ BY statistical baseline
- ▶ Forecasts modifications in BY

- ▶ “Forecast Revision” baseline to be shared with local Planning and Sales & Marketing teams
- ▶ Get insights from local planning and Sales & Marketing to adjust forecast

- ▶ Validation of forecast baseline
- ▶ KPI calculation in GPPC

## Outputs

- ▶ Machine Learning Database

- ▶ Forecasts file for GPPC

- ▶ Forecasts baseline with first planning adjustments

- ▶ Forecasts baseline with validated forecast quantity

- ▶ Final Forecast in BY (18-month horizon) and GPPC

Data Quality input

+ ML Baseline

+ Planners expertise

+ Market input

= Final Forecast Performance

# DIFFERENTIATION BASED ON PRODUCT'S LIFE

Step in product's life		How forecasts are used	
		High runners (A)	Low runners (B & C)
New products (M0 to M+4)		Human expertise Machine Learning	Human expertise Machine Learning
Scope	Catalogue products – Stationery	Machine Learning Human challenge	Machine Learning
	Catalogue products – Shavers	Machine Learning Human challenge	Machine Learning
	Catalogue products – Lighters	Machine Learning Human challenge	Machine Learning
	Catalogue products – Other Products	Machine Learning Human challenge	Machine Learning
Promotions		Human expertise for promotions impact Machine Learning (with volume effect decomposition)	
One Shot		Human expertise	Human expertise
End-of-life (M-3 to EOL)		Statistical rules Human challenge	Statistical rules Human challenge

TO BE REFINED  
DURING PILOT

During the second phase, a detailed analysis carried out with planners at the product level will allow to adapt the forecasting method to use



# AGENDA

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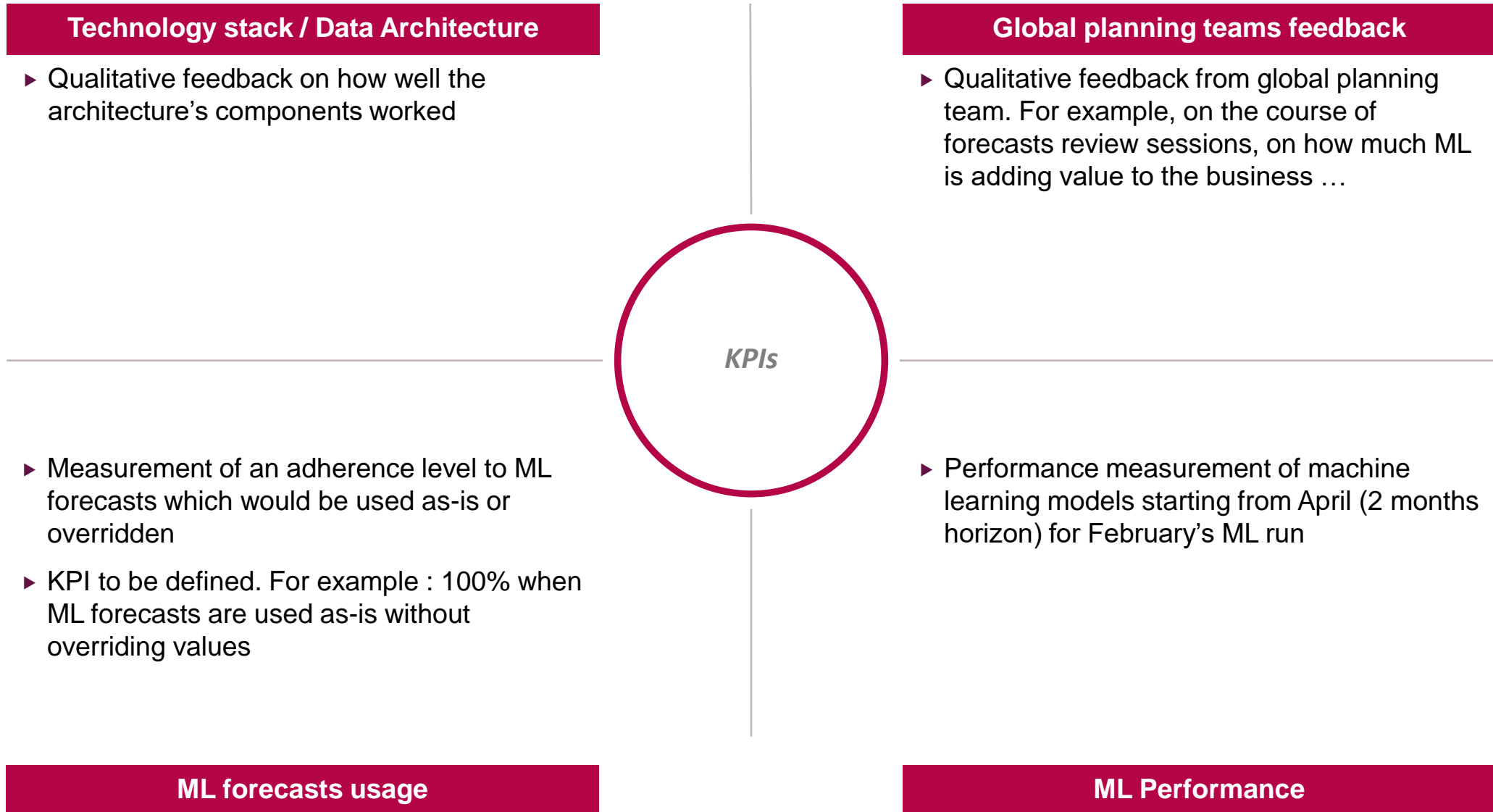
# RESULTS SUMMARY FOR FRANCE & ITALY

	FA 2019	POC FA 2019 ML Baseline	Pilot FA 2019 ML Baseline	FA 2020	POC FA 2020 ML Baseline	Pilot FA 2020 ML Baseline
France – Stationery <sup>(1)</sup>	65,7%	66,5% (+ 0,8 pts)	67,1% (+ 1,4 pts)	64,2%	66,5% (+1,3pts)	66,9% (+1,7pts)
France – Shavers <sup>(1)</sup>	71,6%		71,9% (+ 0,3 pts)	68,2%		71,0% (+ 2,8 pts)
France - Lighter <sup>(1)</sup>	72,3%		73,3% (+ 1 pts)	60,8%		58,0% (- 2,8 pts)
Italy – Stationery <sup>(1)</sup>	52,9%	59,3% (+ 6,4 pts)	59,3% (+ 6,4 pts)	21,4%	38,1% (+ 16,7 pts)	40,6% (+ 19,2 pts)
Italy – Shavers <sup>(1)</sup>	72,0%	72,6% (+ 0,6 pts)	72,6% (+ 0,6 pts)	67,3%	69,7% (+ 2,4 pts)	70,6% (+ 3,3 pts)
Italy - Lighter <sup>(1)</sup>	66,8%	59,0% (- 7,8 pts)	62,8% (- 4 pts)	21,2%	42,8% (+ 21,6 pts)	42,8% (+ 21,6 pts)
Italy- Other <sup>(1)</sup>	55,4%	59,6% (+ 4,2 pts)	60,8% (+ 5,4 pts)	56,0%	63,1% (+ 7,1 pts)	64,6% (+ 8,6 pts)
Italy – Mixed <sup>(1)</sup>	66,2%	68,1% (+ 1,9 pts)	69,2% (+ 3 pts)	54,3%	68,5% (+ 14,2 pts)	72,8% (+ 18,5 pts)

Forecast Accuracy comparison between BIC's final Forecast and Machine Learning output



# PILOT PHASE KPI MEASUREMENT



**THANK YOU!**

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