Assessing the Impact of Forecasting

2024

Topics

Tenzo

WHERE RESTAURANTS THRIVE

Typical we see groups forecast for two use cases

Why Forecast?

Staffing

- Control **Costs**
- Capture **Sales**
- Improve **Service**
- More **Predictability** for Staff

> More common and easier to implement

Inventory

- Reduce **Waste**
- Faster **Service**

> Requires deep analysis on shelf-life & prep times... Usually a PAR system is best

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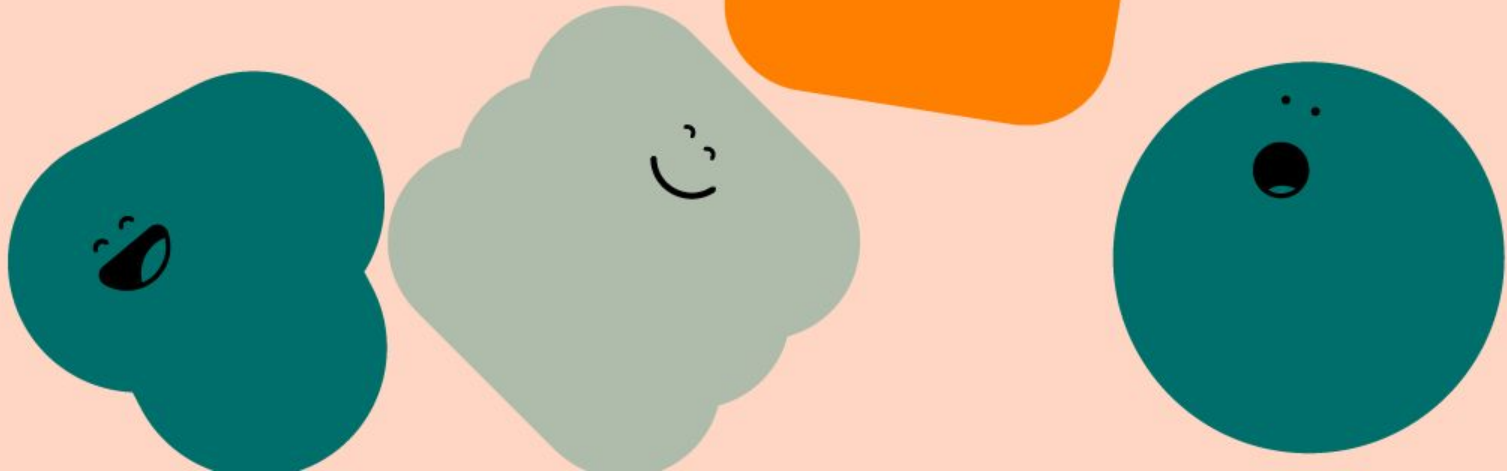
Forecasting Challenges & Common Methods

We've noticed three common challenges to forecasting systems

Forecasting Challenges

Many Variables to Weigh	**100s of variables to consider such** as: Seasonality, Weather, Holidays, and Marketing Events…
Variables are highly Variable!	… and **each variable impacts each site MUCH differently** (e.g., Rain may increase demand in malls!)
Implementation is Difficult	**Must be trusted** by GMs **and embedded into their planning processes**/tools to have an impact

All variables, especially weather, impact each location differently

Weather impact for multi-brand group

Brand	Sun	Rain	Snow
1			
2			
3			
4			
5			

Positive Impact

Negative Impact

Typically, we see 4-types of forecasting used by restaurants

Forecasting method overview

Method	Pros	Cons
1 Financial Targets / Budget	Simple and Aligns Teams	Least accurate
2 Decentralise to Each GM (Gut Based)	Skilled GMs may be very accurate	High variance and stressful
3 Rolling Average (i.e., 4-Week Average)	Accurate...sometimes, and scalable	Misses holidays and weather
4 Algorithmic / AI Forecasts	Potential for highest accuracy + lowest stress	Difficult to built and gain trust

And unfortunately, a 4-Week AVG leaves a lot to be desired

Challenges of 4 Week AVG Forecast

UK Bank Holidays 2023
© uk-public-holidays.com

- Misses bank holidays & then the forecast is off for the *next four weeks!*

- **Weather** not included!

- **Train strikes + school breaks** missed... and the next four weeks of forecasts too
- **Marketing campaigns**/promotions not included

- ... And **adjusting a forecast is stressful** for GMs and Staff

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Is improving forecasting worth it?

Key takeaways when evaluating the potential impact

Key takeaway slide

Measure volatility / outliers, not just average accuracy

Look at covers/revenue error, not just % error

Analyse if improvement would actually make a staff impact

Impact

Forecast Accuracy

Accuracy only matters if it would change your staffing schedule
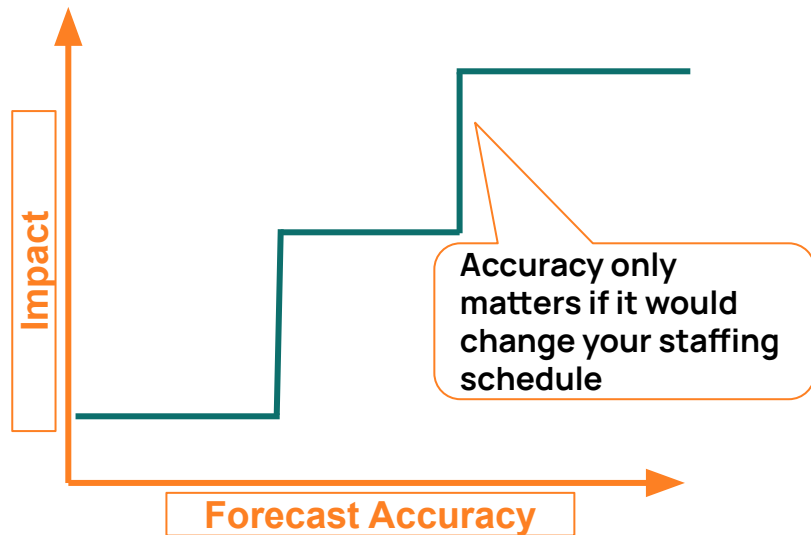
First, we'll measure your accuracy and then the potential impact

Forecasting Assessment

1 **Measure Accuracy**

- Overall accuracy
- Site-by-site comparison
- Holidays and Train Strikes

2 **Analyse Impact**

- Discuss how the accuracy impacts staffing

3-Months of Data

- Actual Covers

- Forecasted Covers

- By Site & Day
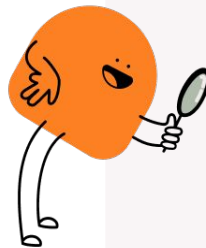
Overall accuracy is 13% with high variance across the estate

Accuracy across sites

Accuracy by Site
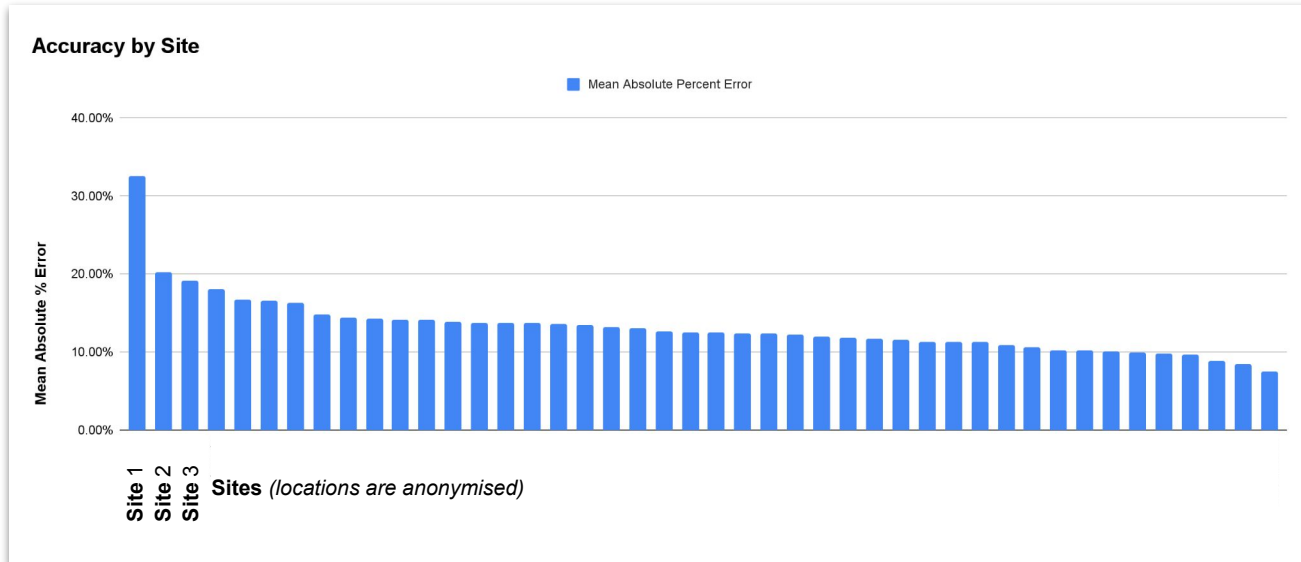
■ Mean Absolute Percent Error

Overall Accuracy

- **13% AVG Error[1]**
- **High variance across sites**
  - **Worst: 33%**
  - **Best: 7%**

1. We measure error by Mean Absolute Error Percentage (MAPE)

But, just a 7% error can mean missing 38 Covers!

Distribution of Accuracy by Site

We measured the **avg. # of Covers which over/under forecasted...**

Accuracy by Site

Mean Absolute Percent Error ■ Mean Absolute Covers Error ■

Mean Absolute % Error

40.00%
30.00%
20.00%
10.00%
0.00%

60
40
20
0

Covers

Site 1
Site 2
Site 3

Sites *(locations are anonymised)*
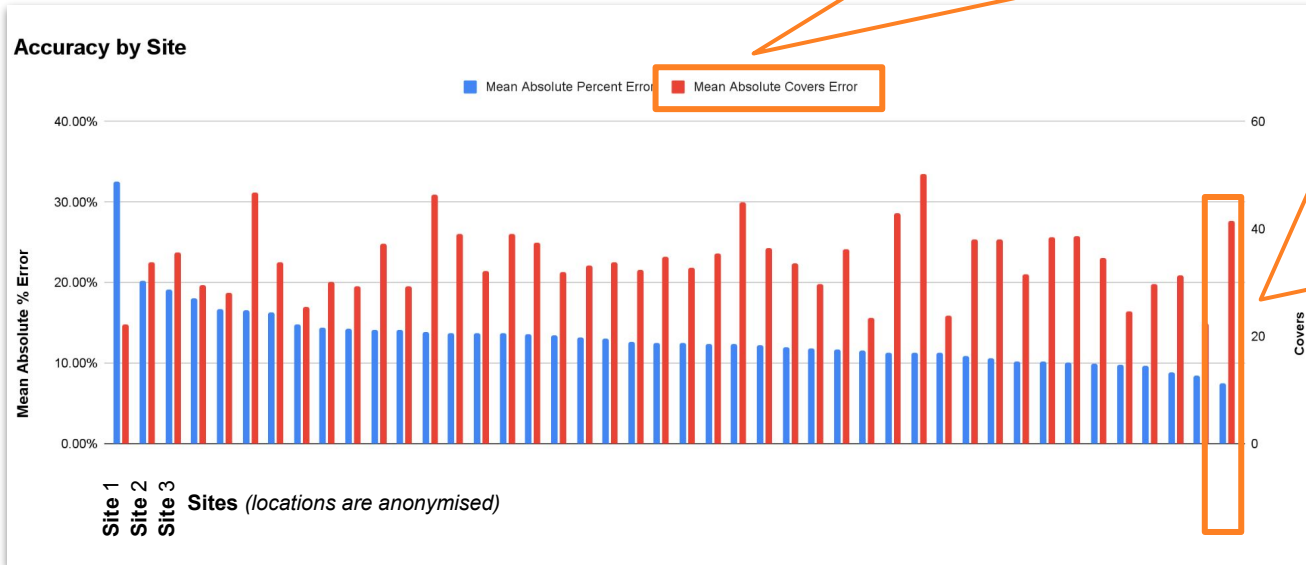
...and e**ven though this site is the most accurate by % error**, they **still missed +38 covers** on average

Could 38 Covers could mean a 1-2 staff difference?

Holidays and train strikes

Holidays

- During the 3 Bank Holidays, **the average error grew to 24% from the average of 13%**

Train Strikes

- Train Strikes caused **site to have errors of 35% and 51%**

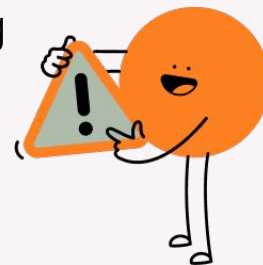## Accuracy Target

The Goal

Accurate enough that you **plan the right amount of staff**, **at the right times**… anything more is *just* extra

Rule of 20%

Typically, **operations struggle when the forecast is off by ›20%.**

- **Customers wait** too long
- **Quality drops**
- **Stressed staff**
- **Miss** labour **budget**

20% rule across all sites

How Often Forecasts are >20% Off

Bucket	Count
[0%, 10%]	2060
(10%, 20%]	1142
(20%, 30%]	474
(30%, 40%]	173
(40%, 50%]	73
(50%, 60%]	26
(60%, 70%]	19
(70%, 80%]	3
(80%, 90%]	1
(90%, 100%]	4
> 100%	3
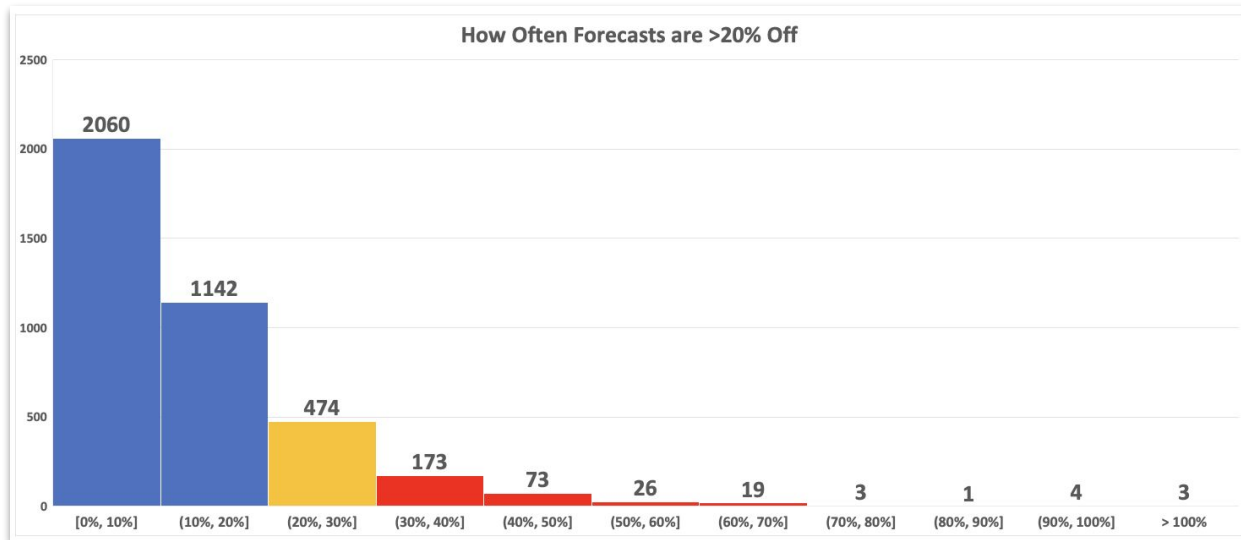
776 Days

- Forecasts were off by >20% across all sites
- This was 19% of the total days

302 Days

- Forecasts off by >30% or more

The impact of being 20% off (2/2)

20% Error means a 39 cover difference for the evening shift

Actual vs Forecasted Covers by Hour

Would you add or subtract a staff member if the forecast was off 39 covers in the evening?

From 1600-2200, being 20% means being off by 39 covers for Site x.

For the entire year, this might impact this one site £14k in costs
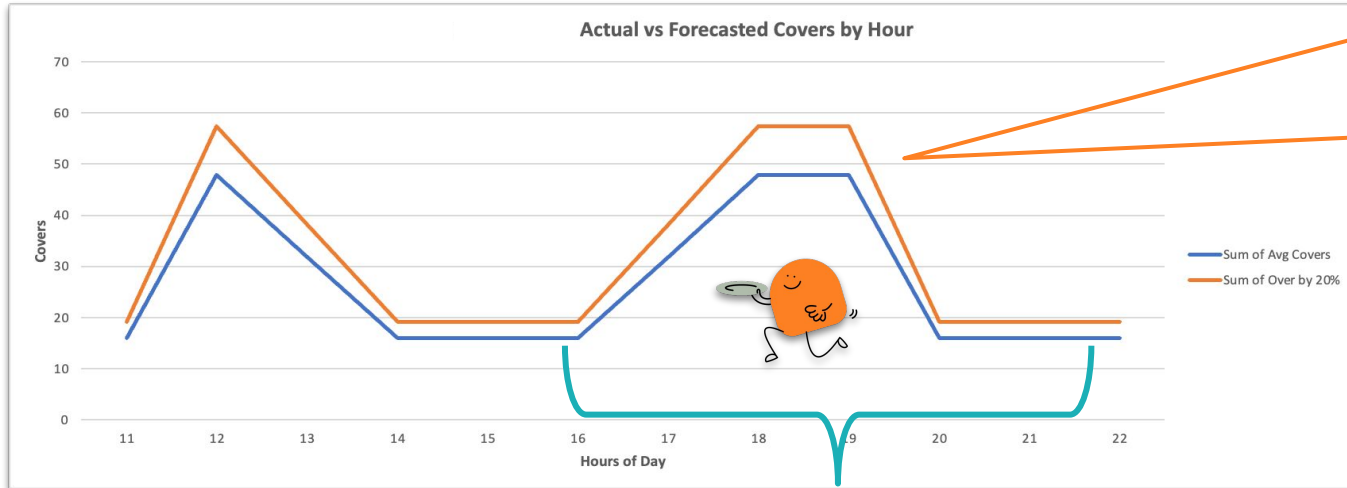
Assessing the impact (£)
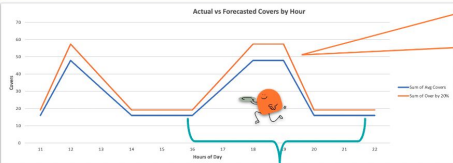
What might this cost?

The impact of being 20% off (1/2)

Site X Deep-Dive | Avg. Covers | 319 per Day

The impact of being 20% off (2/2)

20% Error means a 39 cover difference for the evening shift

Actual vs Forecasted Covers by Hour

Would you add or subtract a staff member if the forecast was off 39 covers in the evening?

From 1600-2200, being 20% means being off by 39 covers for Site x.

Overstaffing when 20% off
- 2x shifts per day (14 Hours)
  - 1x Lunch, 1x Evening

Overstaffing when 30% off
- 3x shifts per day (21 Hours)
  - 1x Lunch, 2x Evening

Frequency
- 70 days per year forecast is off >20%
  - 42 days error between 20-30%
  - 28 days error >30%

Potential Impact

£14k per year, per site[1]

1. Assumes £12 fully loaded hourly rate

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Implementing a
forecasting system

Quick tips on implementing a forecasting system

Implementation tips

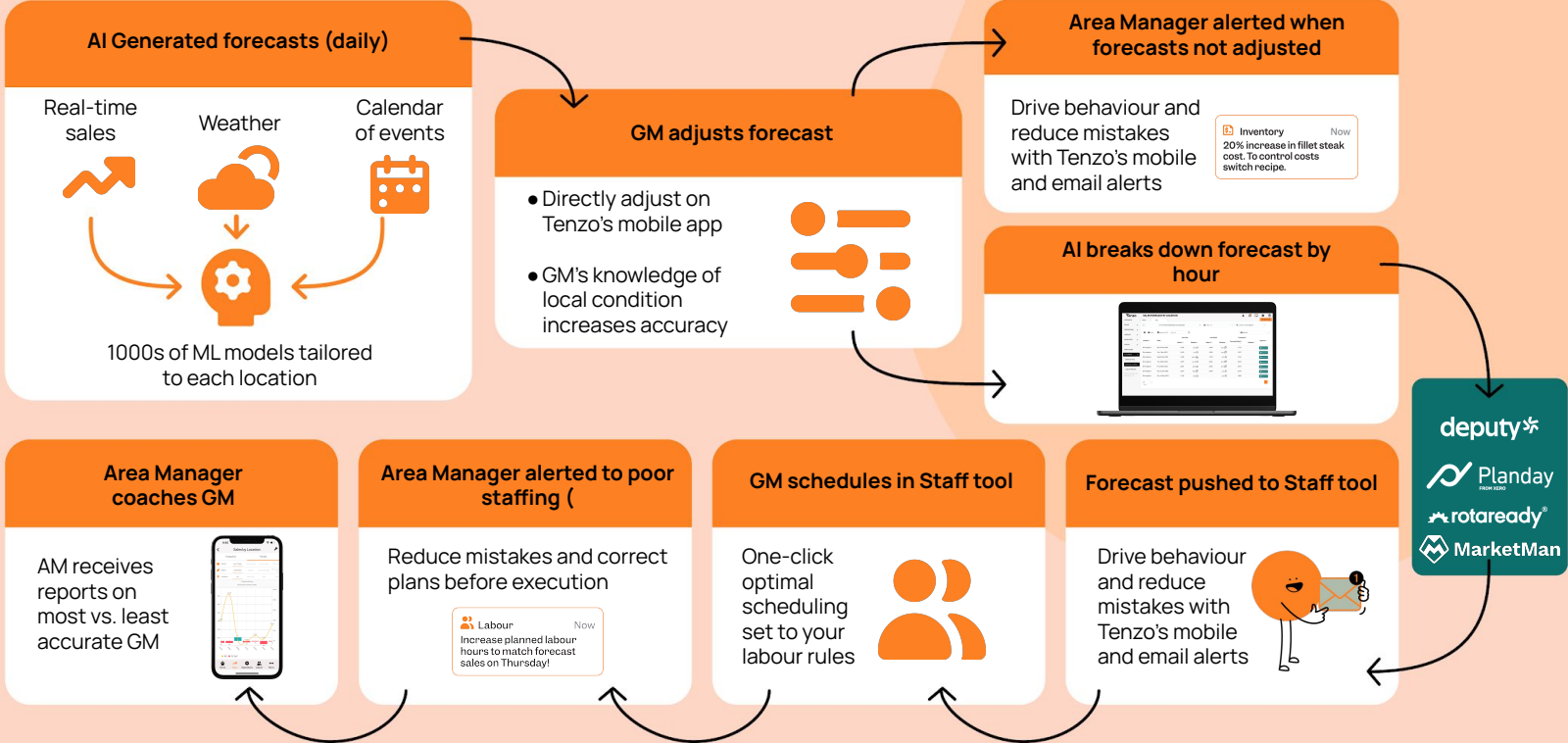|	
Buy-in from GMs	If GMs don't trust the forecast, they won't use it. We recommend Human + AI Team.
Embedded in planning process	The forecast can't just live in Excel, it needs to live inside the labour scheduler
Use a rolling AVG if not using Machine Learning	We've never seen an in-house system, that tries to implement some smart algorithm beat a 4-week average

Tenzo's approach to the forecasting process

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AI Generated forecasts (daily)

Real-time sales

Weather

Calendar of events

1000s of ML models tailored to each location

GM adjusts forecast

- Directly adjust on Tenzo's mobile app
- GM's knowledge of local condition increases accuracy

Area Manager alerted when forecasts not adjusted

Drive behaviour and reduce mistakes with Tenzo's mobile and email alerts

Inventory   Now
20% increase in fillet steak cost. To control costs switch recipe.

AI breaks down forecast by hour

Area Manager coaches GM

AM receives reports on most vs. least accurate GM

Area Manager alerted to poor staffing (

Reduce mistakes and correct plans before execution

Labour   Now
Increase planned labour hours to match forecast sales on Thursday!

GM schedules in Staff tool

One-click optimal scheduling set to your labour rules

Forecast pushed to Staff tool

Drive behaviour and reduce mistakes with Tenzo's mobile and email alerts

deputy
Planday FROM XERO
rotaready
MarketMan

Curious to learn more?

Tenzo forecasting overview

Happier teams. Happier restaurants. Happier planet.

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Restaurant PerformanceOps