



THE FUTURE OF FORECASTING & THE M6 COMPETITION

New-York, NY
Nov. 6-7, 2023

**The Bottom Line:
Examining
Forecast Quality
through the Lens of
Business Results**





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Hat off to the M-competitions



Beyond forecast accuracy



**More accurate
forecasts
means
better
decisions...**

No?



Today's agenda

Agenda

- ✓ State of the art
- ✓ Business-oriented alternative
- ✓ Experimental results
- ✓ Mapping the value
- ✓ Conclusions (+ takeaway)

Assessing forecast quality: **the state of the art**



Rising concerns about FA

The International Journal of Applied Forecasting

FORESIGHT

Tributes to Len Tashman

Why Do We Talk about Forecast Accuracy Measures (So Much)?

A New Approach to Business Planning during Crises

Business Forecasting: Issues, Current State, and Future Direction

Minitutorials

Special Feature:
Does Forecast Accuracy Even Matter?

2023:Q1

Issue 68

A business-oriented alternative



Using the M5 forecasting competition: a unique dataset!

👉 **Retail context (Walmart)**

👉 **10 stores x 3049 products**

👉 **74 deterministic forecasts**

👉 **56 probabilistic forecasts**

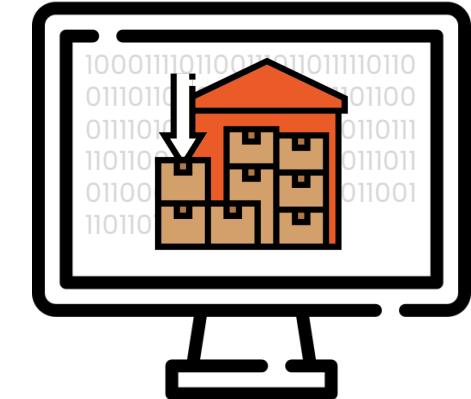
👉 **« Enriched » with Supply Chain data**



Simulation tool

M5
dataset

30k+ timeseries
100+ forecasts



Simulation
tool



Correlation
estimate

- { FA metrics
- Business value

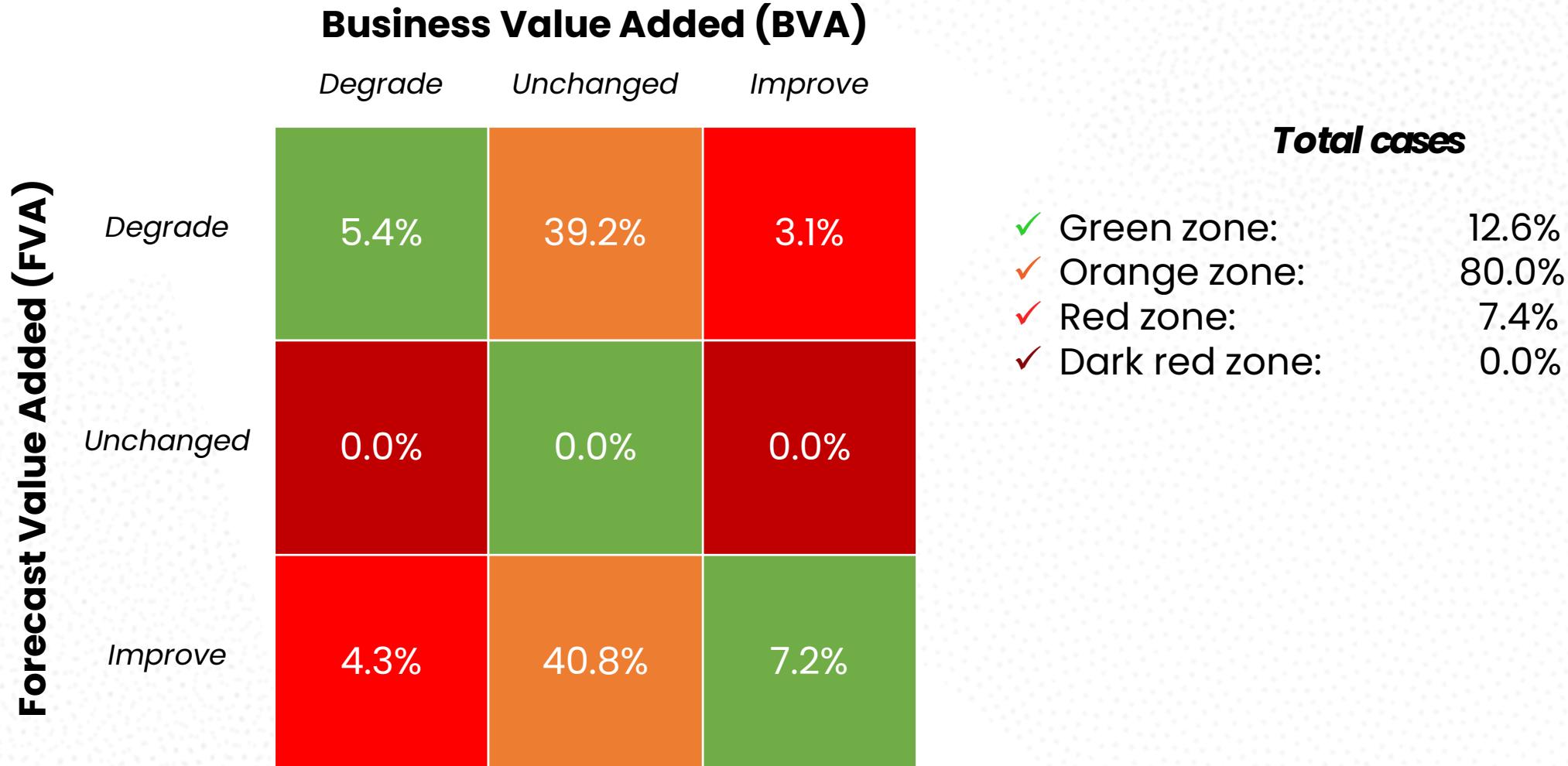


Confusion matrix FVA/BVA

		Business Value Added (BVA)		
		Degraded	Unchanged	Improved
Forecast Value Added (FVA)	Degraded	Green	Orange	Red
	Unchanged	Red	Green	Red
	Improved	Red	Orange	Green



Confusion matrix FVA/BVA





Confusion matrix FVA/BVA

		Business Value Added (BVA)				
		Degradate	Unchanged	Improve		
Forecast Value Added (FVA)	Degradate	5.4% -3,698k€	39.2%	3.1% 1,348k€	Total cases / Absolute added value	
	Unchanged	0.0%	0.0%	0.0%	✓ Green zone:	12.6% 8,376k€
	Improve	4.3% -1,903k€	40.8%	7.2% 4,678k€	✓ Orange zone:	80.0% -

**In business,
“The better the
accuracy,
the better the
forecast”**

is a myth!

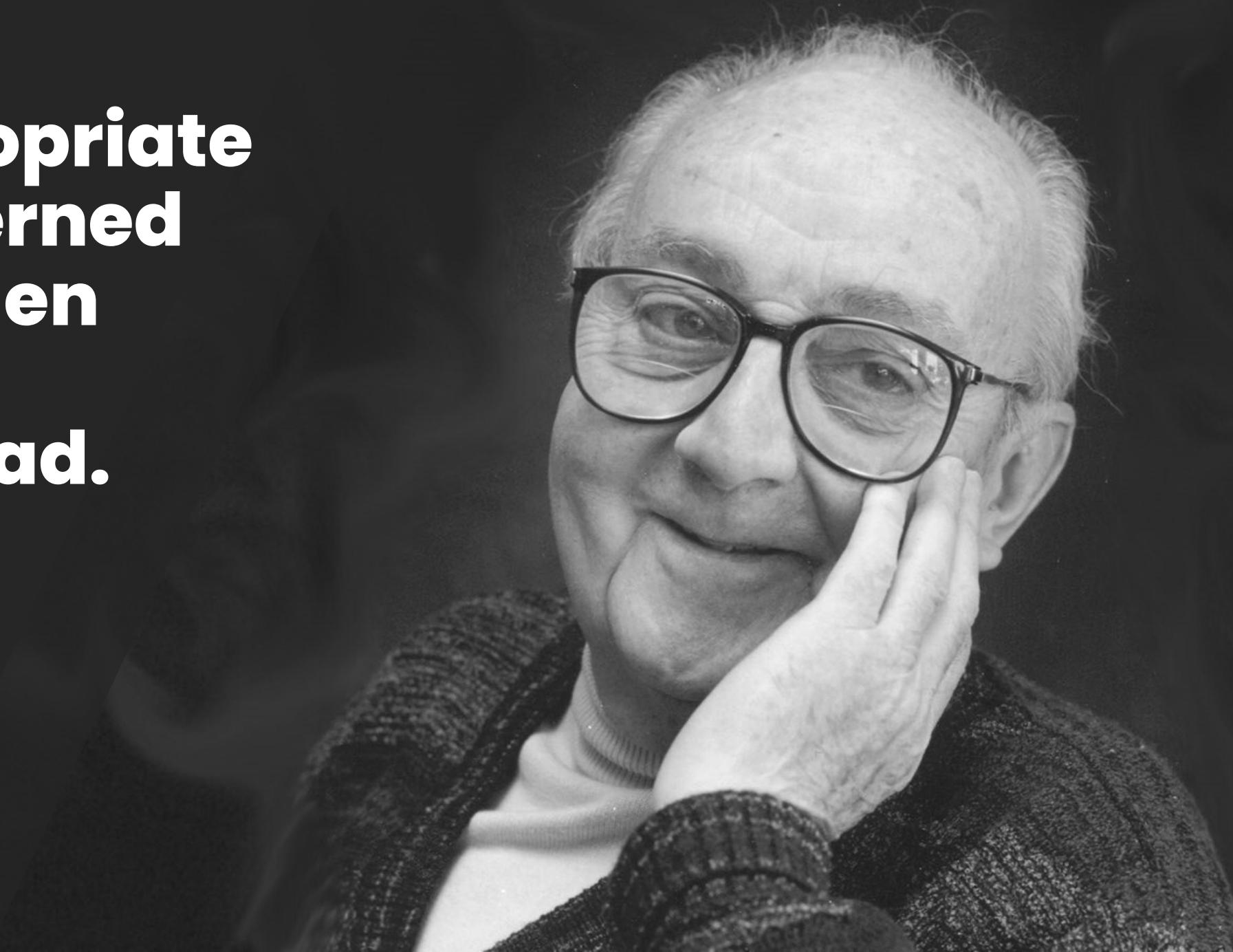


**Is the sky
the limit ?**



**It is inappropriate
to be concerned
by mice when
there are
tigers abroad.**

**George Box
(1919–2013)**



Ceiling analysis





Maximum savings



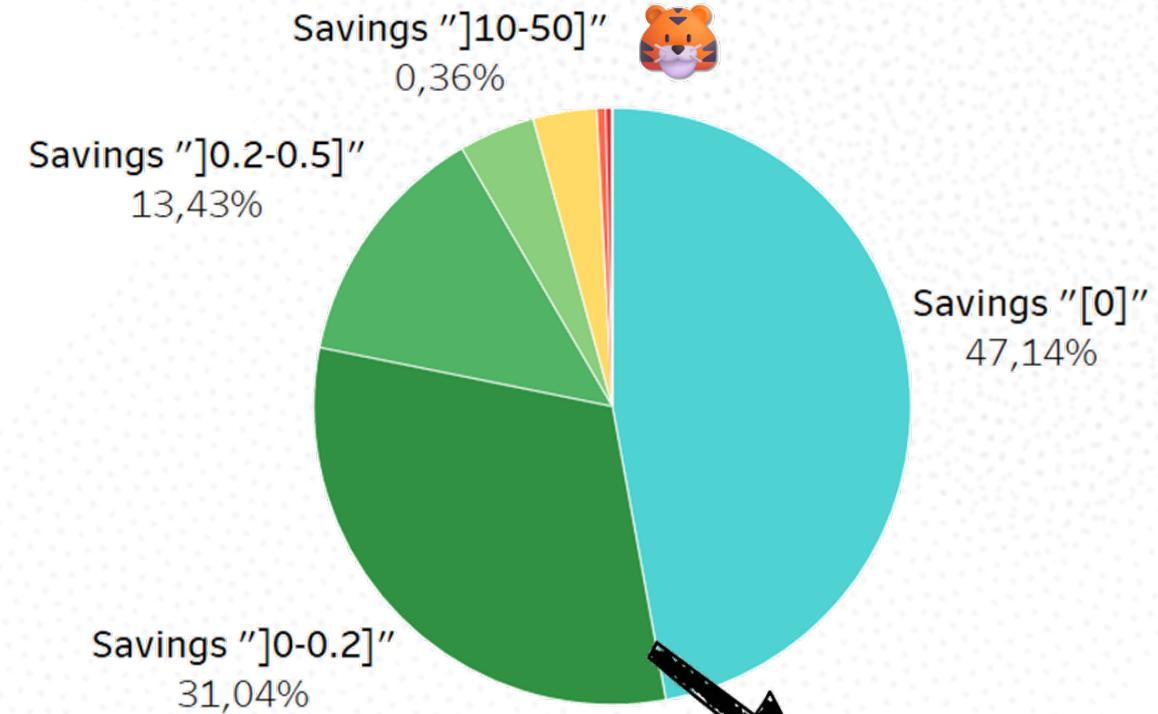
**Savings \$8,411
(52% of the SES costs)**



Maximum savings



**Savings \$8,411
(52% of the SES costs)**



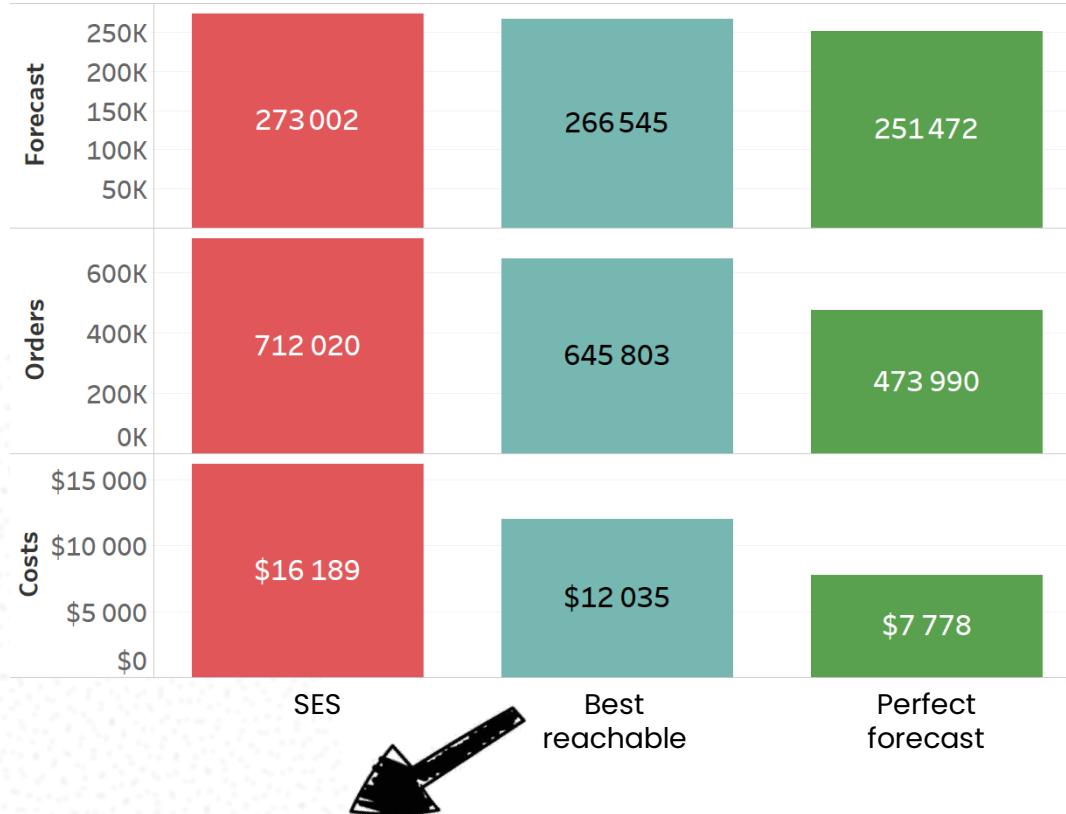
**78% « item x store »
in the [\$0-\$0.20] range
= little to no savings**

Forecast- ability





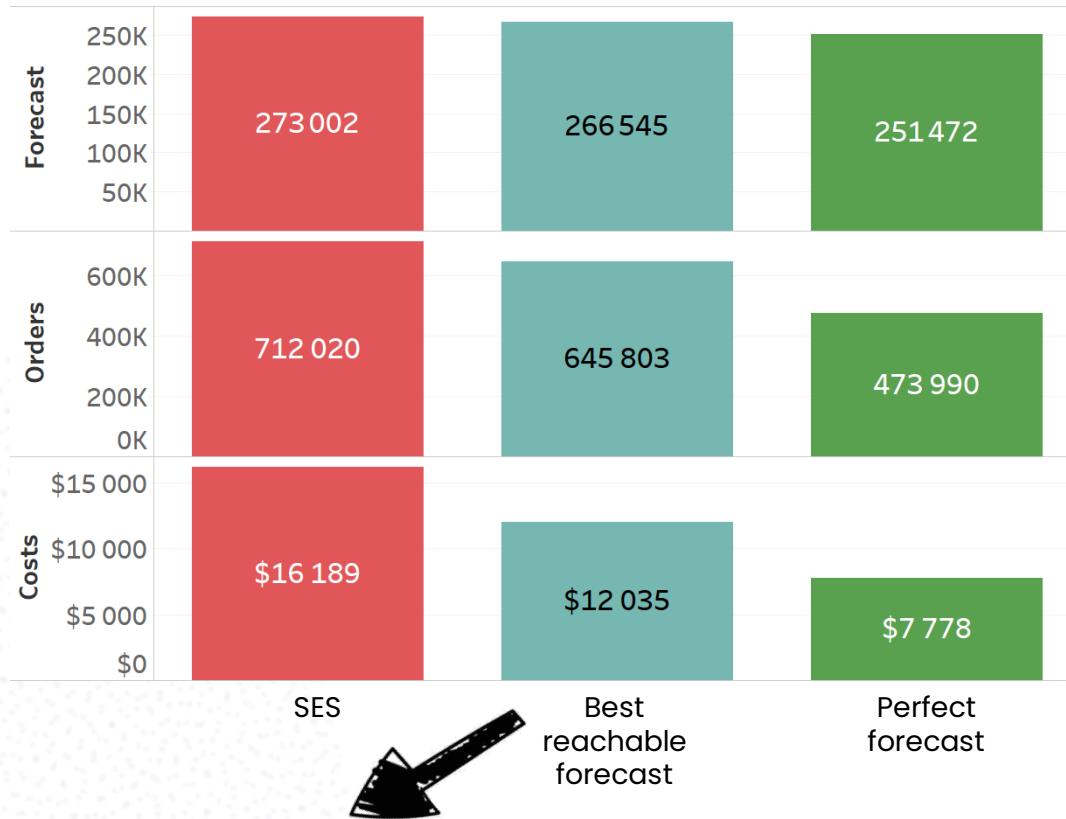
Reachable savings



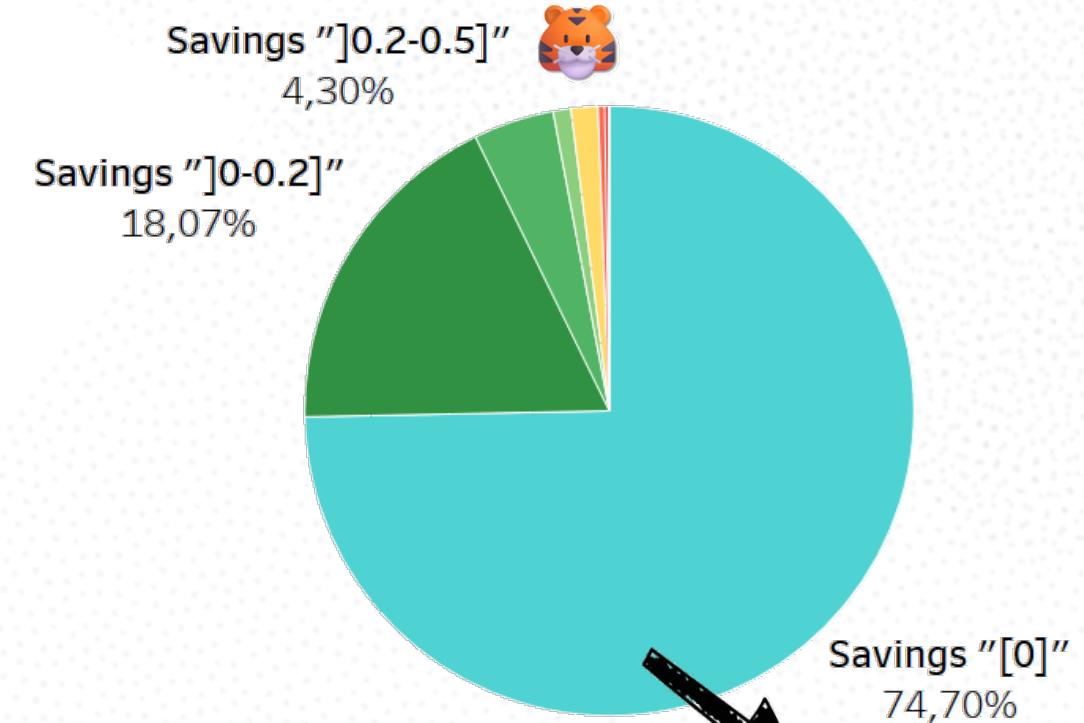
**Savings \$4,154
(26% of the SES costs)**



Reachable savings



**Savings \$4,154
(26% of the SES costs)**



**93% « item x store »
in the [\$0-\$0.20] range
= little to no savings**



Understanding value





Understanding value

👉 **Value generated by the 'naive' benchmark forecast**





Understanding value

👉 Value generated by the 'naive' benchmark forecast



👉 Value generated by the 'best reachable' forecast

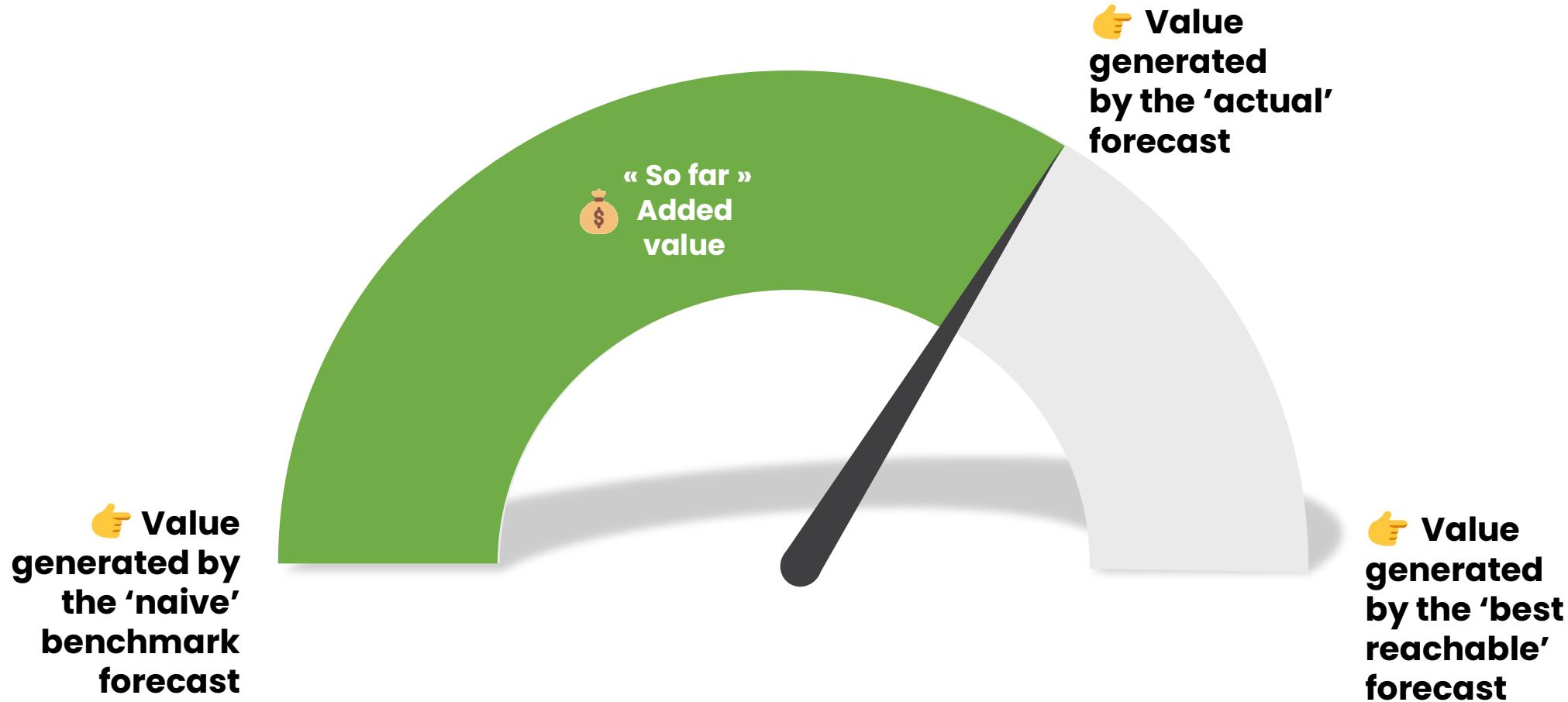


Understanding value



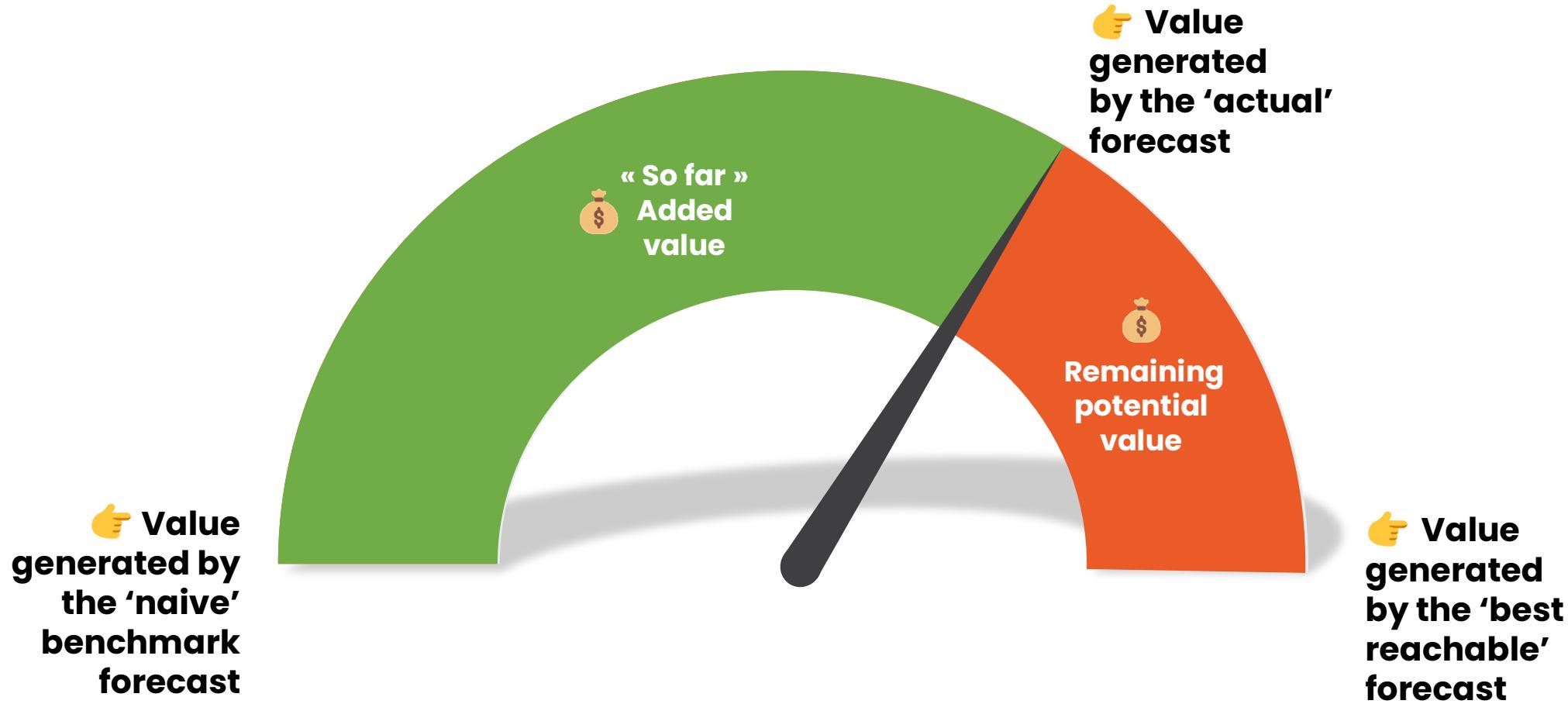


Understanding value



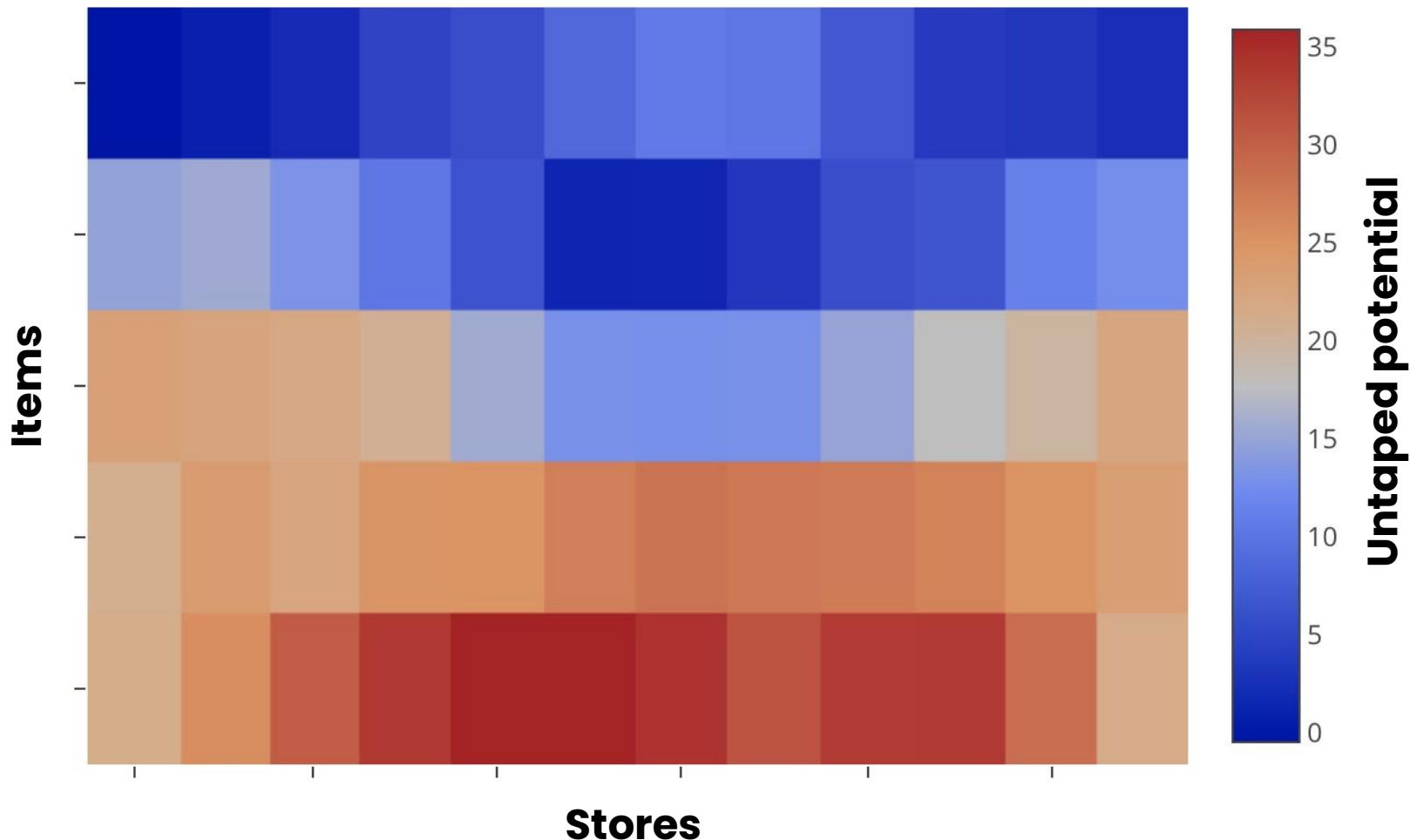


Understanding value

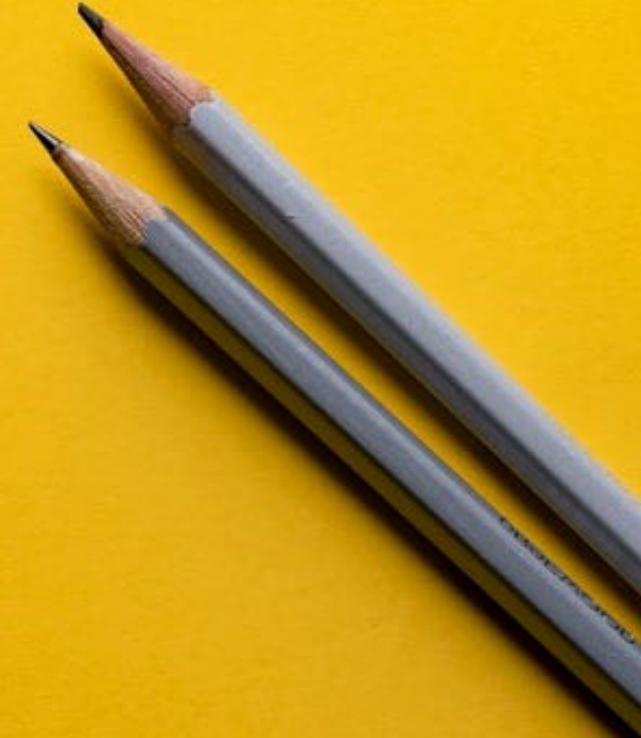




Plotting the untapped potential



In a nutshell



In a nutshell



We're not engaged
in an accuracy
challenge.
**Our goal is “just”
to create value.**



In a nutshell



Not everything that can be improved necessarily needs to be improved.
Perfection is not required.



In a nutshell

Our new
super-power
is to distinguish
 from !



DANKE !

THANK YOU !

MERCI !

GRAZIE !

GRACIAS !

DANK JE WEL !

