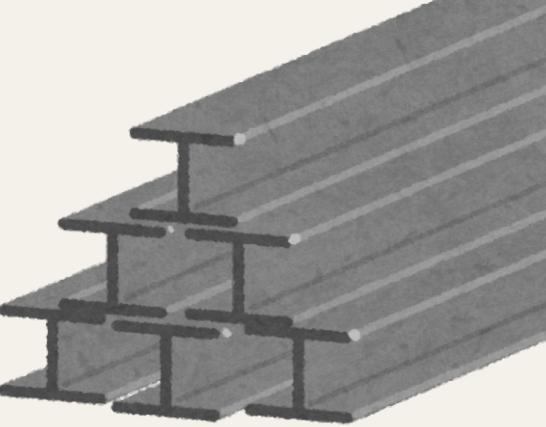


Insights & Recommendations For NatSteel

By Team Pushpa

- **Background**
- **DataRobot Models**
- **Insights From DataRobot**
- **Macro-Economic Situation**
- **Recommendations**
- **Live Demo (GenAI)**

Background



Singapore's steel industry is a **cornerstone** of its construction and manufacturing sectors.

Demand for steel is highly influenced by **trade dynamics** and **infrastructure projects**.



Background

Forecasting steel consumption is critical for making supply-chain related decisions. Every decision made comes with a cost.



Background

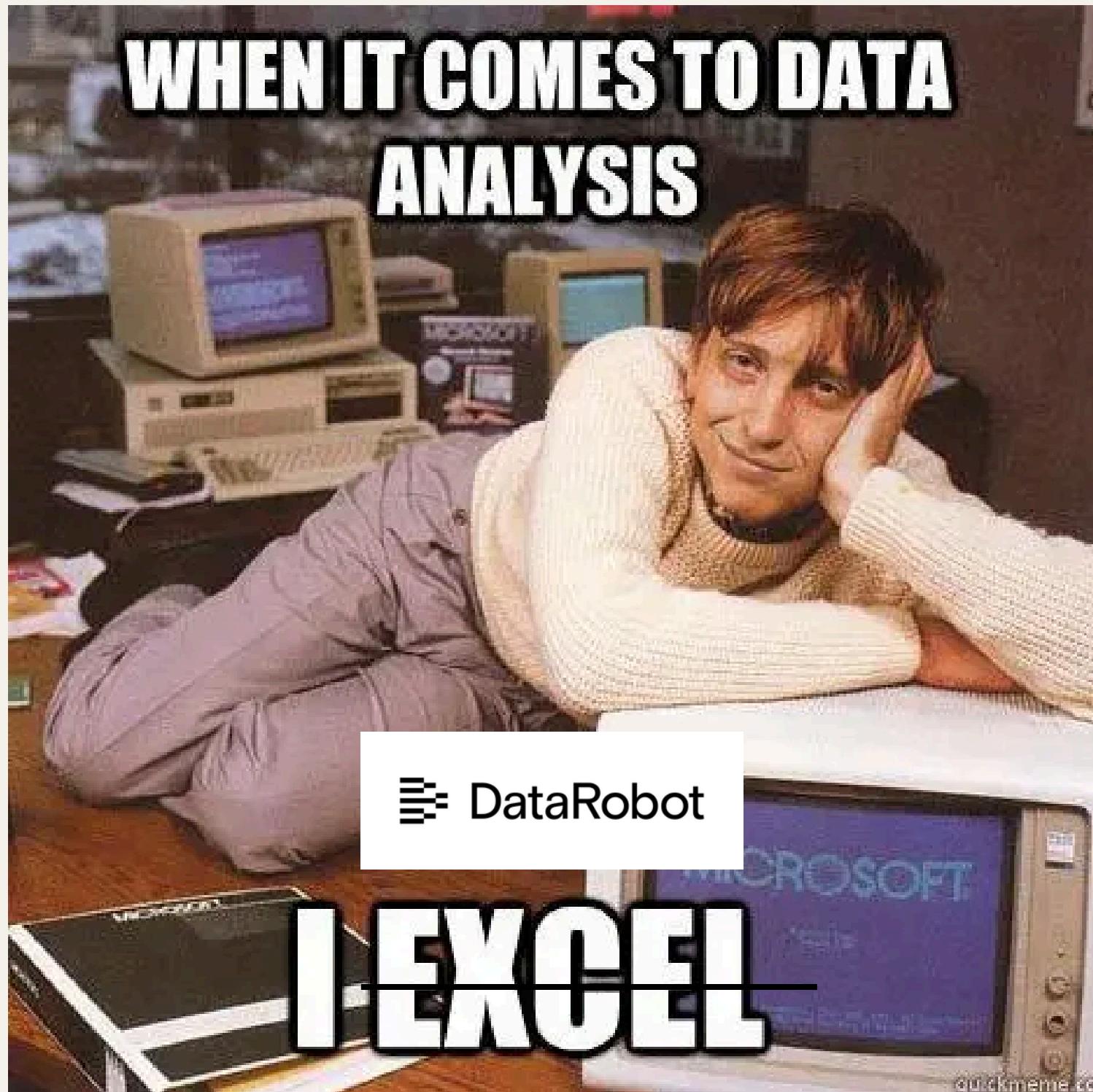
But First... What is Steel Consumption?

NatSteel's **Steel Consumption** Refers To The **Amount Of Steel** NatSteel **Uses** For Manufacturing, Fabrication & Onward-Processing.

Implies Demand For Steel In Singapore



Background

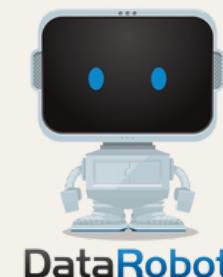


By The End Of This Presentation, **NatSteel will...**

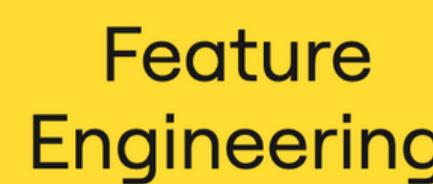
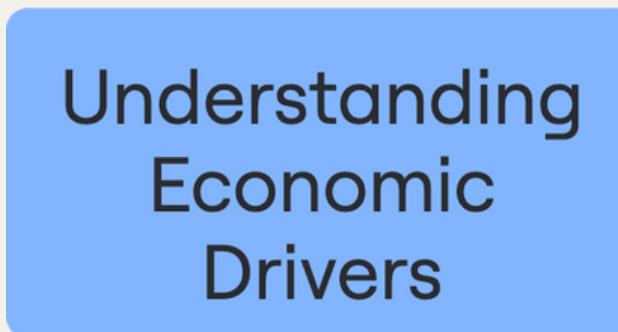
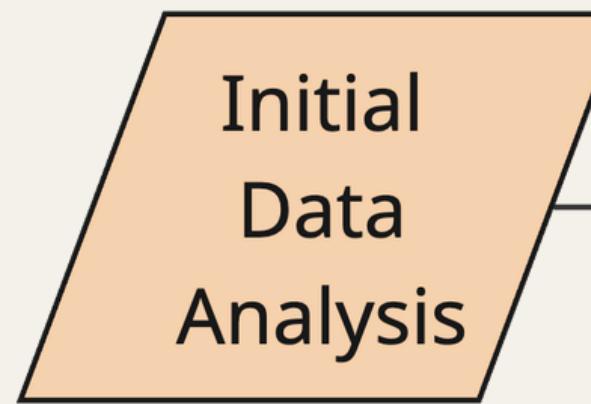
- 1) Know **Key Demand Drivers** Of Steel Consumption (**Insights**)
- 2) Understand Why Consumption Of Steel Is **Forecasted** As Such (**Insights**)
- 3) Know How To **Prepare And Respond** To Insights & Forecasts (**Recommendations**)

End-End Workflow

DataRobot Models



1980 - 2023 Data
27 Features



Added GDP,
[Crisis, Recovery,
Stabilization,
Expansion]
categories



Years Clustered Into

[Expansion,
Moderate, Crisis]

>2008: Moderate
(VUCA)

K-Means
Clustering

SHAP Values

Top 10 Drivers Of Steel
Consumption

Regression
Model

XGBoost



Time-
Series
Model

miro

Predict Steel Consumption
Until 2027

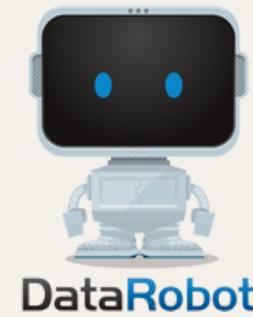
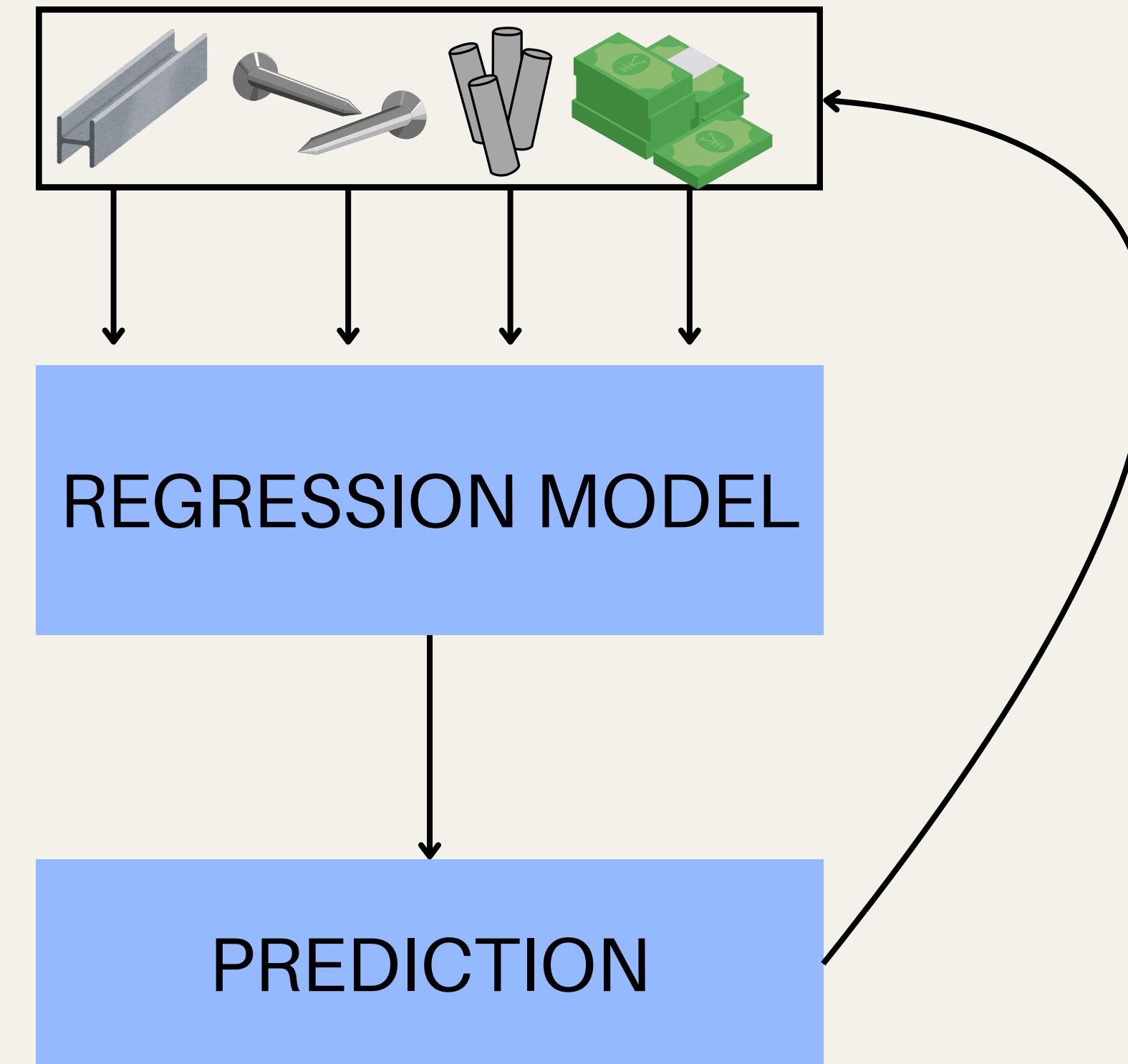
DataRobot Models

Let's Play A Game Called SHAP!

Features
(Imports/Exports/
Production/GDP)

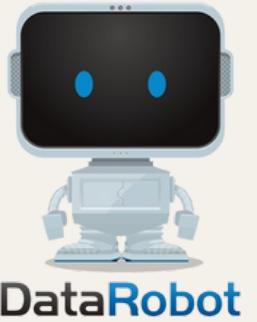
The Game

Payout of the game
(Consumption Of Steel)



DataRobot

How do I
distribute the
payout fairly
among the
contributors?



DataRobot

DataRobot Models

DataRobot | Workbench Registry Console

trial-fe71d357-6afa-4ede-bba1-c7d... Days remaining: 13

Use Case directory / NatSteel Analyse Relationship / [Natsteel NAISC - Test_No_Total.xlsx - 2025-05-25 19:53:14](#)

Data preview

Show features from: Raw Features + Create feature list Q Search Hide summary

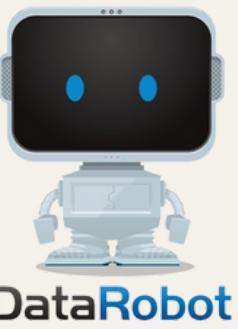
Name	Features	Rows	Data Quality Assessment	View details		
Natsteel NAISC - Test_No_Total.xlsx - 2025-05-25 19:53:14	33	44	i For Raw Features	i		
Award Private Building Numeric	Award Private Civil Engi... Numeric	Award Public Building Numeric	Award Public Civil Engine... Numeric	Consumption_(Target = I... Numeric	Export Coated Sheets & S... Numeric	Export Col Numeric
[4224.8 - 6146.7) [6146.7 - 8068.6) Other	[0 - 167.57) [167.57 - 368.66) Other	[2550.57 - 3642.06) [3642.06 - 4733.55) Other	[785 - 1628.72) [1628.72 - 2472.44) Other	[400000 - 761552.2) [2569313.2 - 2930865.4) Other	[4000 - 28255.1) [115573.46 - 144679.58) Other	[82782.04 - 67876.17 - Other
15% 12% 50%	27% 15% 42%	15% 15% 52%	26% 18% 32%	20% 20% 43%	24% 15% 56%	
2809	0	2902	927	400000	4000	
4539	0	3898	785	450000	6000	
4151	0	3833	1626	550000	8000	
1494	0	3189	2280	600000	10000	
684	0	2188	1965	650000	12000	
				550000	8000	

44 rows out of 44 i

DataRobot
Makes It
Easy To
Understand
& Visualise
Data

Insights From DataRobot

eXreme Gradient Boosted Trees Regressor
(SHAP)

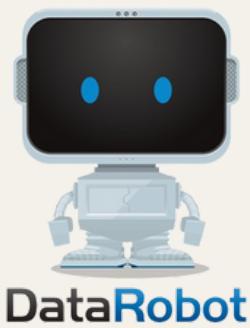


What Drivers Of
Steel Demand
(features) Should
NatSteel Focus
On?

Insights From DataRobot

XGBoost Regression Model
(SHAP)

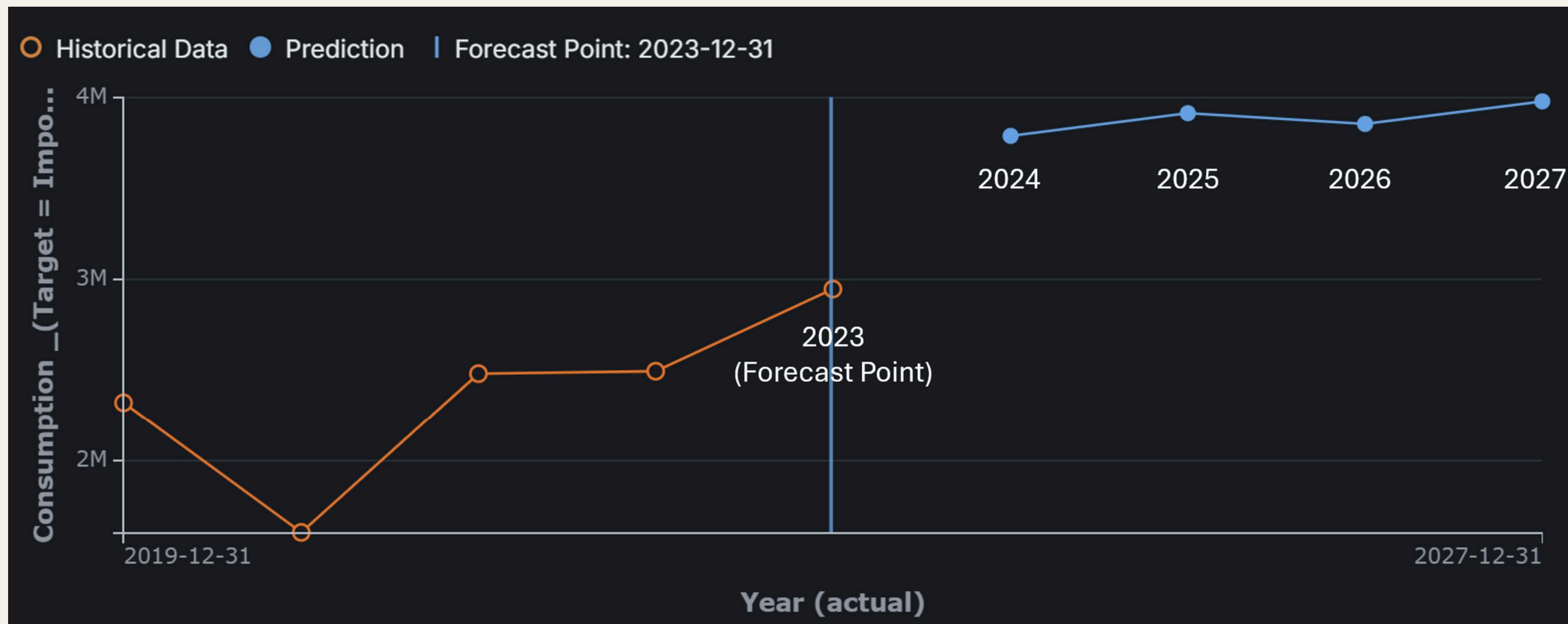
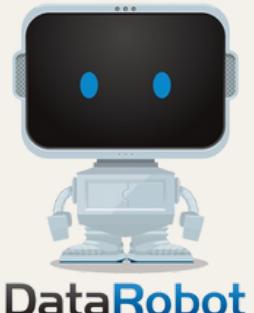
Feature	Raw Score (Floored)	Normalized Score
Import Hot_rolled steel Products	303901	100%
Import Coated Sheets & Strips	299530	98.56%
Import Pipes & Tubes	147488	48.53%
Production Hot_rolled Steel Products = Production Total	48739	16.04%
Import Iron Products	42109	13.86%
Export Hot_rolled Steel Products	37049	12.19%
Export Coated Sheets & Strips	35942	11.83%
Import Cold_rolled Products	29399	9.67%
Import Cold Finished & Cold Formed Steel	27140	8.93%
Import Ferro Alloys	21799	7.17% Cut off at 5%



Top 10 most influential features (SHAP Score)

Insights From DataRobot

Non-Context Aware (Time Series Model)



Current / Recent Macro- Economic Situations

2024 (Over)



Preliminary Actual Construction Demand for 2024

3 The preliminary total construction demand for 2024 reached S\$44.2 billion in nominal terms, exceeding BCA's mid-year revised forecast of between S\$35 billion to S\$41 billion. This was mainly attributed to the rolling out of more public institutional projects, as well as public and private housing projects.

“Exceeding BCA’s mid-year revised forecast”

2025 & 2026

Date: May 23, 2025

US Tariffs on Chinese Goods (May 2025)

Tariff	Tariff rate	Target products	Effective date*	Stacking
				*
Reciprocal	34% → 10% (90-day truce)	All (some exclusions apply)	April 2, 2025 → May 14, 2025	Yes
Fentanyl	20%	All (some exclusions apply)	March 4, 2025	Yes
Section 232	25%	Steel and aluminum products, automobiles and automotive parts	March 12, 2025	No
Section 301	List 1: 25%	List 1: Inorganic chemicals; organic chemicals; pharmaceutical products; rubber and products thereof; iron and steel and products thereof; aluminum and products thereof; nuclear reactors; electrical machinery and equipment; vehicles and parts; aircraft, spacecraft, and parts; ships and boats; optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; etc.	List 1: July 6, 2018	Yes



"25% tariffs On Steel from China"

Trump Administration's Tariffs

Date: May 20, 2025

"New US tariffs on steel and aluminium are tightening global supply chains, and Singapore is starting to feel the strain," said Mr Benjamin Lim, Singapore Manufacturing Federation's (SMF) industry group chairman for building products and construction materials.

"Mills in China and India are fully booked for the next six to seven months as US buyers stockpile materials, limiting availability in Asia, and driving up costs."

On May 12, the US and China agreed to suspend part of their tariffs on their respective exports for 90 days. This was the latest development in what has become a tit-for-tat exchange between the two superpowers over trade since the US leader announced sweeping global tariffs on April 2.

Despite the 90-day truce, analysts pointed out that the 25 per cent sector-specific tariffs on steel, aluminium, automobiles and auto parts announced in March and April remain in place, albeit with rebates for vehicles assembled in the US and a partial exemption for the UK.



The 10 per cent universal tariffs announced on "Liberation Day" are also still in place.



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"Mills in China & India are Fully Booked"

2025 & 2026

Date: June 23, 2021

Nevertheless, Ng was optimistic about the future, saying that most major public works projects were just postponed, but not cancelled, and that by June, construction activity had recovered to around 80% of pre-pandemic levels, with safe management measures still in place.

"Steel consumption is expected to bounce back this year, as most construction activities have resumed," he said, though "the transport engineering sector will be affected by weakness in the global oil and gas markets," he added.

As for Singapore's total steel foreign trade, the total volume also decreased 16% on year in 2020, mainly because of lower imports in the second half, as a result of many economies around the world being locked down, Ng noted.

In 2020, Singapore's steel imports declined to 2.7 million tonnes, down from 3.4 million tonnes in 2019, whereas exports remained largely stable at 1.5 million tonnes, compared with 1.6 million tonnes in 2019, Ng said quoting Customs statistics.

China remained Singapore's largest supplier of steel last year (accounting for 24% of Singapore's total imports), followed by South Korea (17%), which replaced Turkey at No.2. South Korea had shipped a lot of hot-rolled sheets and strips to Singapore last year.

Also in 2020, 52% of Singapore's steel exports were destined for Indonesia, with the second largest destination being Malaysia, Ng's presentation showed.

Source:Mysteel Global



China is
Singapore's
Largest
Supplier of
steel

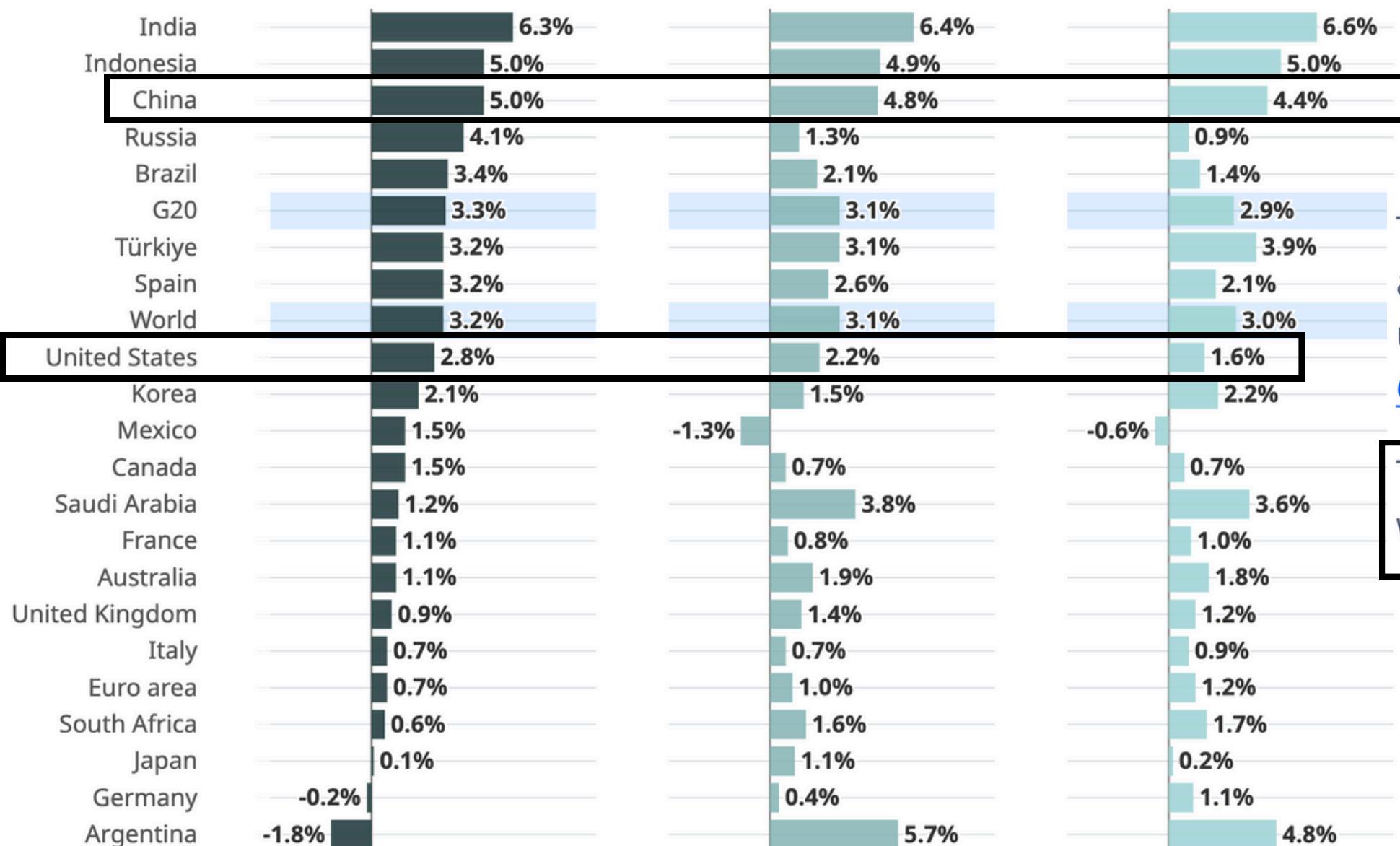
2025 & 2026

Projected Slow Global Growth (2025-2026)

Date: March 17, 2025

Real GDP growth projections for 2024, 2025 and 2026

%, year-on-year



The global economy has been resilient in 2024, but some signs of weakness are appearing against a backdrop of slower growth, lingering inflation and an uncertain policy environment, according to the OECD's latest [Interim Economic Outlook](#).

The Outlook projects global growth slowing to 3.1% in 2025 and 3.0% in 2026, with important differences across countries and regions.

**“Signs of Weakness...
Uncertain policy environment”**

2027

Date: April 15, 2025

THE STRAITS TIMES

SINGAPORE

LOG IN ST SUBSCRIBE PDF

Property market should start to ease with larger housing supply in pipeline, says Desmond Lee



In 2025, HDB will roll out about 19,600 flats. ST PHOTO: LIM YAOHUI

Michelle Ng and Ng Wei Kai

UPDATED APR 15, 2025, 09:54 PM

f < ...

SINGAPORE – The public and private housing markets have started to stabilise, and the property market should start to ease when housing supply increases, said

Increased Urbanization & Housing Demand

Date: March 05, 2025

THE STRAITS TIMES

SINGAPORE

LOG IN ST SUBSCRIBE PDF

Two new MRT lines under study; Jurong Region Line extension in West Coast to proceed



In the nearer term, Mr Chee Hong Tat said new MRT stations or lines will be added here every year from now until the end of the decade. ST PHOTO: BRIAN TEO



Kok Yufeng

UPDATED MAR 05, 2025, 10:16 PM

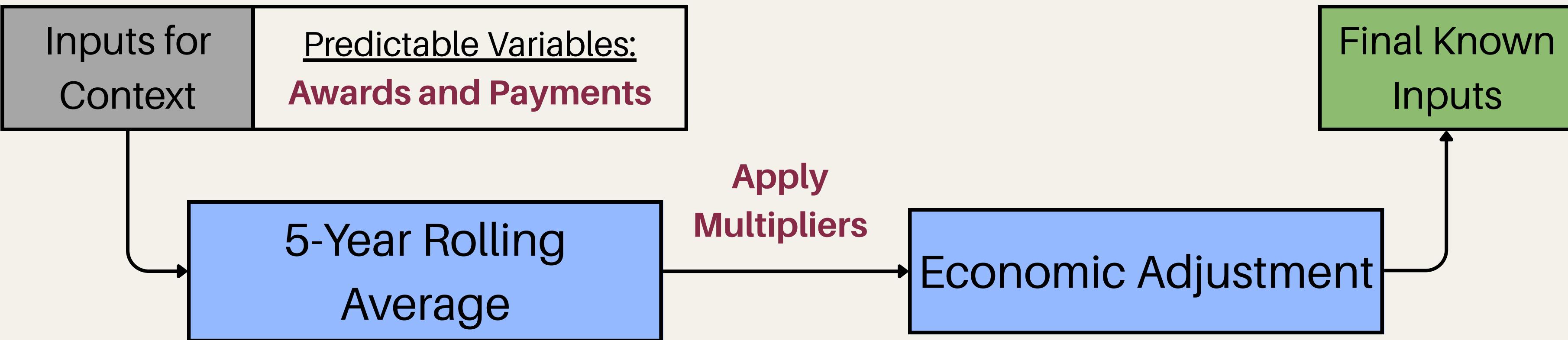
f < ...

“Larger Housing Supply In Pipeline”

“Two New MRT Lines Under Study”

Insights From DataRobot

Context-Aware (Time Series Model)



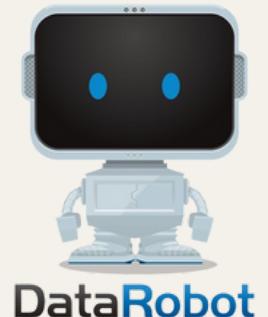
Smooth Historical Base



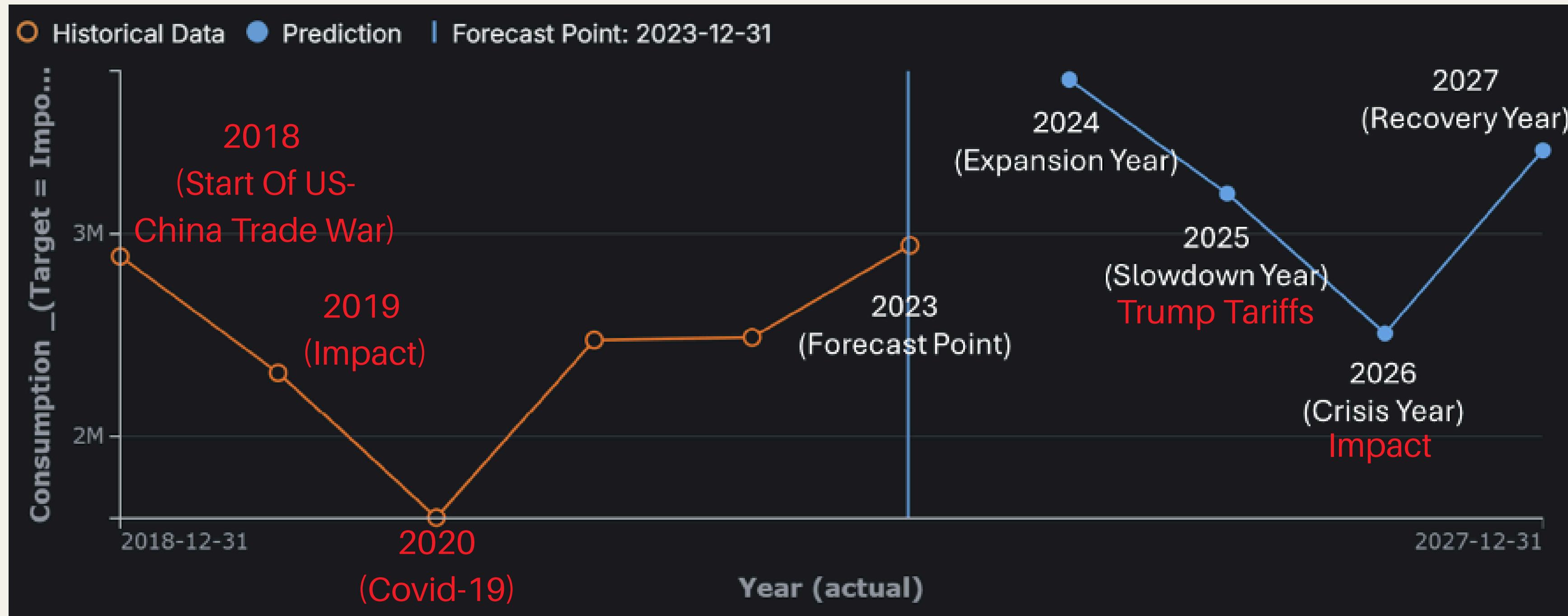
2024	2025	2026	2027
Expansion × 1.2	Slowdown × 0.9	Crisis × 0.8	Recovery × 1.1

Insights From DataRobot

Context-Aware
(Time Series Model)



History Repeats Itself...

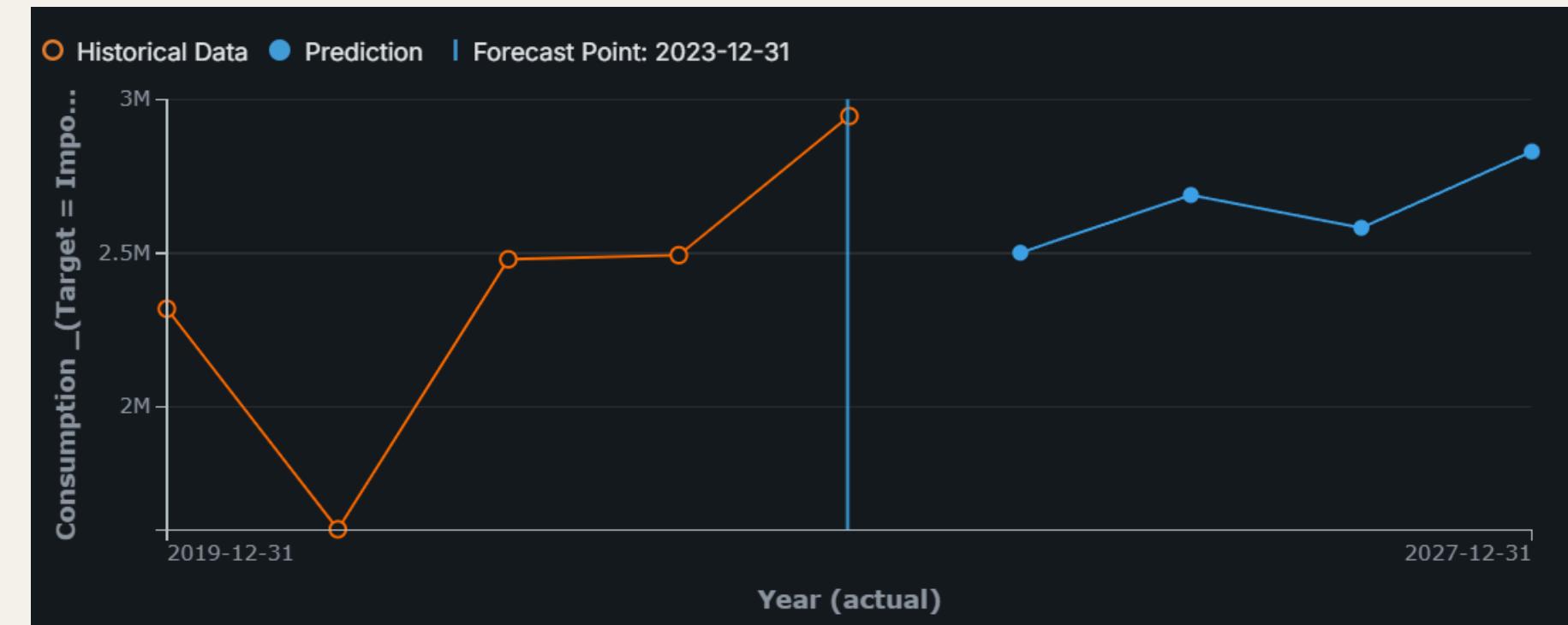
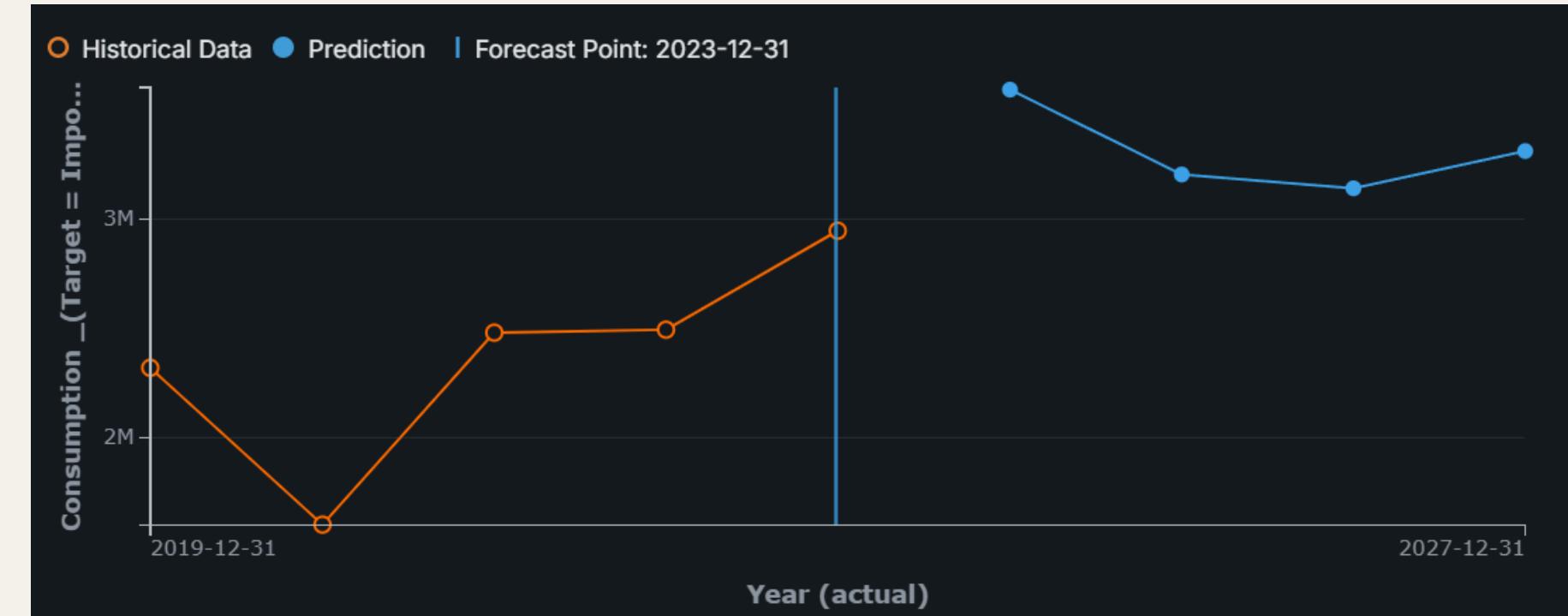


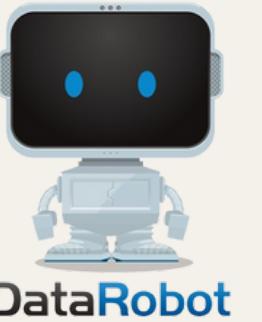


Insights From DataRobot

Optimistic Forecast

Pessimistic Forecast





Insights From DataRobot

Last Historical Year	Historical Consumption	
Forecast Year	Forecasted Consumption	Percentage Change
2023	2945382	
2024	3759422	+27.63785
2025	3199508	-14.8936
2026	2512961	-21.4579
2027	3411993	+35.77579

Forecasted Consumption of Steel

Recommendations

Recommendations

For Remainder of 2025 & 2026:

Potential Issue: High steel import price

- Hot rolled steel products
- Coated Sheets & Strips
- Pipes & Tubes

Suggestion: **Reduce Reliance On China** if they decide to increase steel prices (steel mills being booked out)

Instead **Engage More South Korean & Turkey** counter-parts for imports of steel

Macro-Economic Situation

Date: April 14, 2025

THE STRAITSTIMES

BUSINESS

LOG IN ST SUBSCRIBE PDF

MAS eases Singapore dollar policy to help economy weather Trump's tariff storm



MAS also lowered its core inflation forecast to average 0.5 per cent to 1.5 per cent in 2025. PHOTO: ST FILE



Ovais Subhani

UPDATED APR 14, 2025, 05:59 PM

f ...

Slower Rate Of Exchange Rate Appreciation

"MAS will continue with the policy of a modest and gradual appreciation of the S\$Neer (Singapore dollar nominal effective exchange rate) policy band. However, the rate of appreciation will be reduced slightly," it announced on April 14.

The MAS move was widely anticipated. Analysts believe an easier currency setting may help cap a recent surge in the Singapore dollar's strength and mitigate some of the price impact on exports from the new tariff.

Analysts, including UOB economist Jester Koh, estimate that the latest easing has slowed down the pace of S\$Neer appreciation to 0.5 per cent a year.

"Easier currency setting may...mitigate some of price impact on exports from the new tariff"

Recommendations



For Remainder Of 2025 & 2026

Potential Opportunity: Increase steel exports

- Hot-rolled Steel Products
- Coated Sheets & Strips

Suggestion: Increase Exports to Malaysia and Indonesia

Incentivise **bulk purchases with volume-based pricing** or flexible payment terms (Staggered payments)

Disclaimer: This is just a **short-term** mitigation

Socio-Economic Situation

Sustainability Trends & ESG Pressure

Date: May 26, 2025



Target Of **80% Green Buildings** By 2030

Singapore is leading the way in low-carbon steel adoption in Southeast Asia, driven by early policy action, including the region's first carbon tax in 2019, and a growing emphasis on sustainability in construction and infrastructure.

This momentum has spurred the uptake of low-carbon steel, starting with the city-state's sole steelmaker, NatSteel, which has recently expanded its low-carbon product supply to New Zealand.

While the steelmaker occasionally imports billet and rebar for its low-carbon steel product, NatSteel primarily uses scrap in the electric arc furnace process and has earned several sustainability certifications.

Most recently, it earned a "Level A" certification from Australia's Global GreenTag for its long steel products, with just 0.5 mt of CO₂ equivalent emissions per ton of steel made -- well below the global average of 1.92 mtCO₂e, according to World Steel Association data.

"Growing emphasis on sustainability in construction and infrastructure"

Recommendations

For 2027 Onwards / Long Term Strategy

Potential Opportunity: Market might be more receptive to green steel

- Production of Steel Products in Singapore

Suggestion: Increase Production of Green Steel from electric arc furnace

Engage Singaporean stakeholders

NatSteel doctrine of value-adding to steel: Focus on more R & D

Demo

CONNECT WITH US ON LINKEDIN!

Thank You



Srikanth Srider



Neeraj Lakshmanan



Baddipadige
Amith Reddy

