

# Sustainability Reporting and Simulation

## Scope 3-model based on IBM Planning Analytics



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Directive 2014/95/EU requires disclosure of non-financial and diversity information, including data on sustainability for specific public companies

<https://eur-lex.europa.eu/legal-content/DE/TXT/?uri=celex%3A32014L0095>



# Reporting on key sustainability data, categorized by the three areas ESG - reflecting UN Sustainable Development Goals as basis for consolidated sustainability data sets

## Customer challenges

- Stakeholder management: employees, regulators, investors, and customer
- Mounting pressure to progress toward more sustainable and socially responsible business operations
- Managing and operationalizing sustainability data across siloed sources and evolving reporting datasets

## Environmental

- Zero-Emission
- Carbon-neutral Production
- Resource consumption and supply chain



## Social

- Dignity and Equality
- Traffic and product safety
- Health and well being
- Corporate responsibility



## Governance

- Governing purpose
- Stakeholder engagement
- Ethical behavior
- Risk & Opportunity oversight

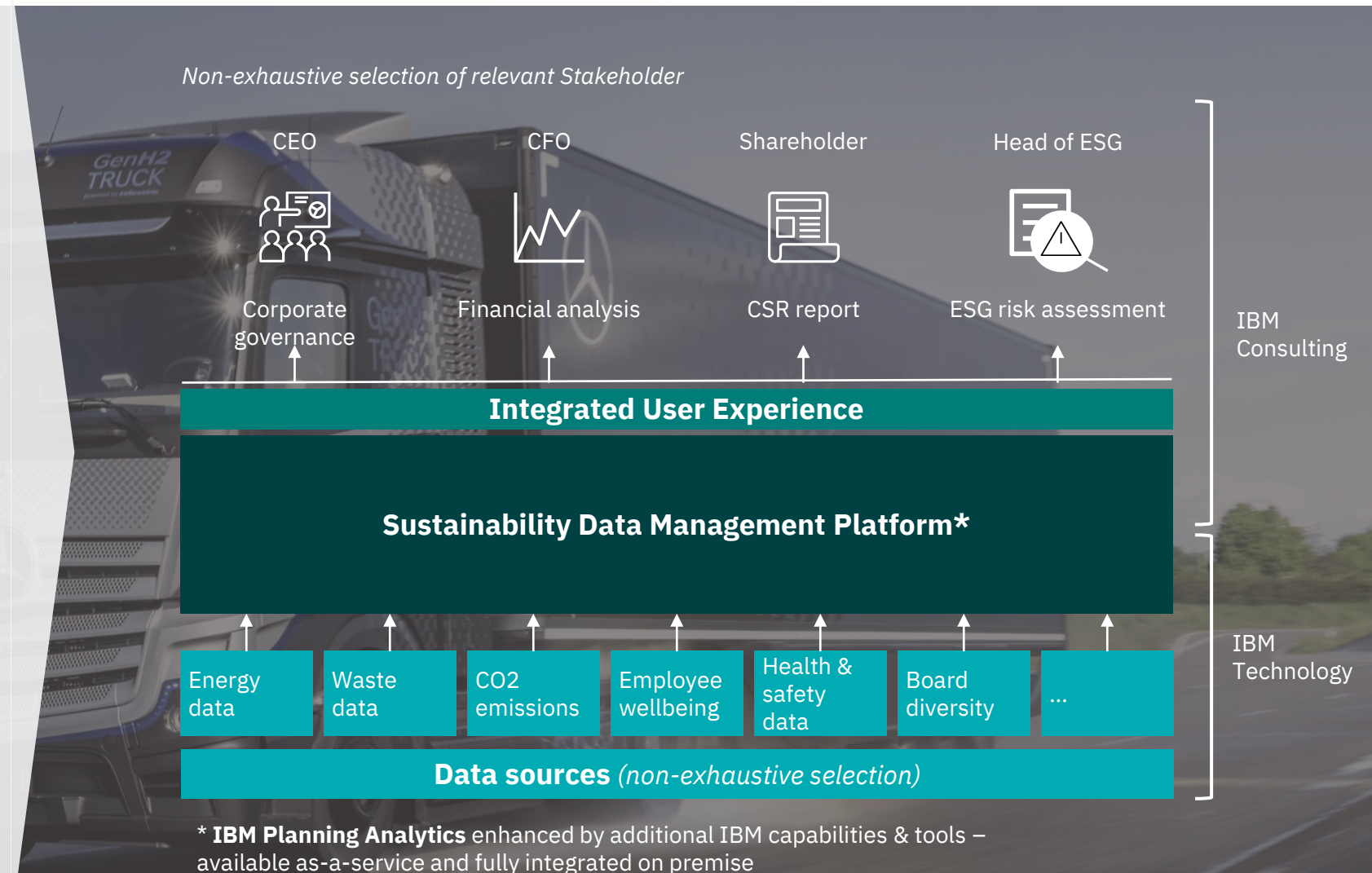


The **ISO standards and regulations** aim to support the alignment of ESG goals with SDG by developing standards for companies – with IBM having extensive experience

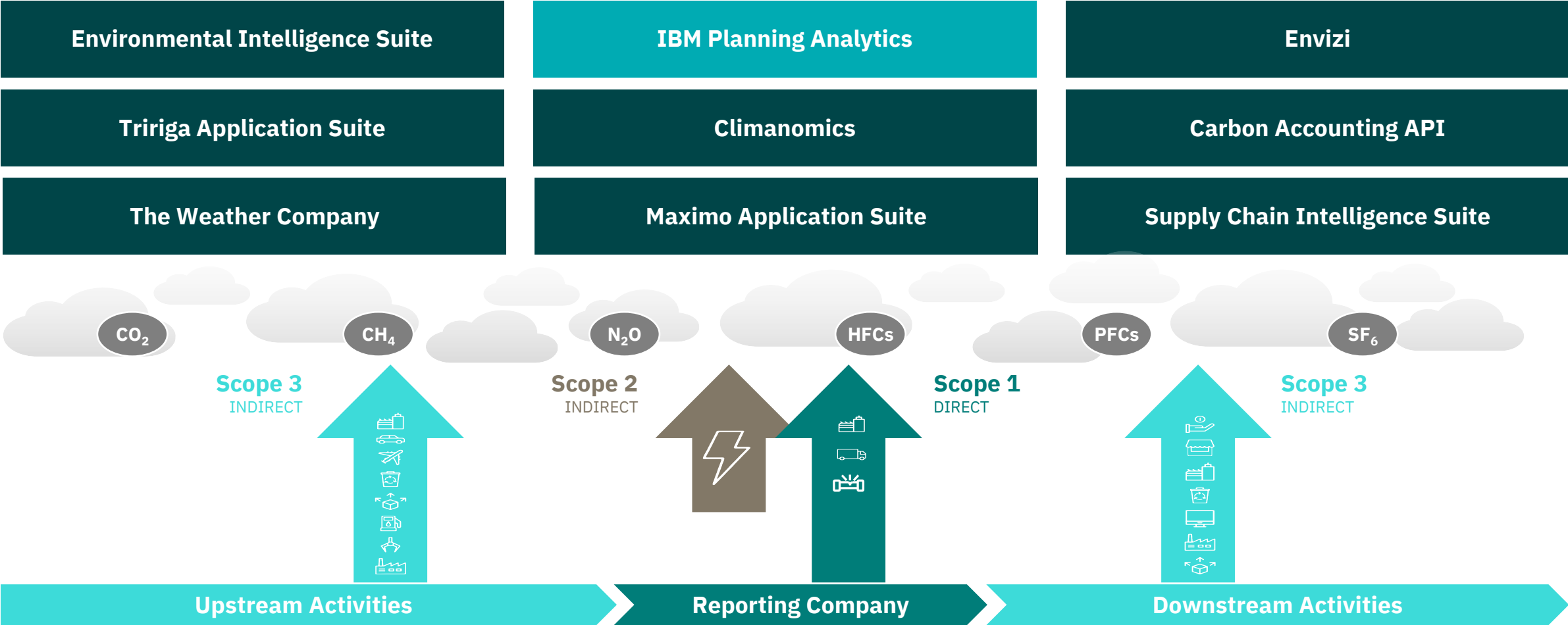
# To accelerate from sustainability insights to action, companies have to improve management of data across siloed sources and datasets

## Challenges

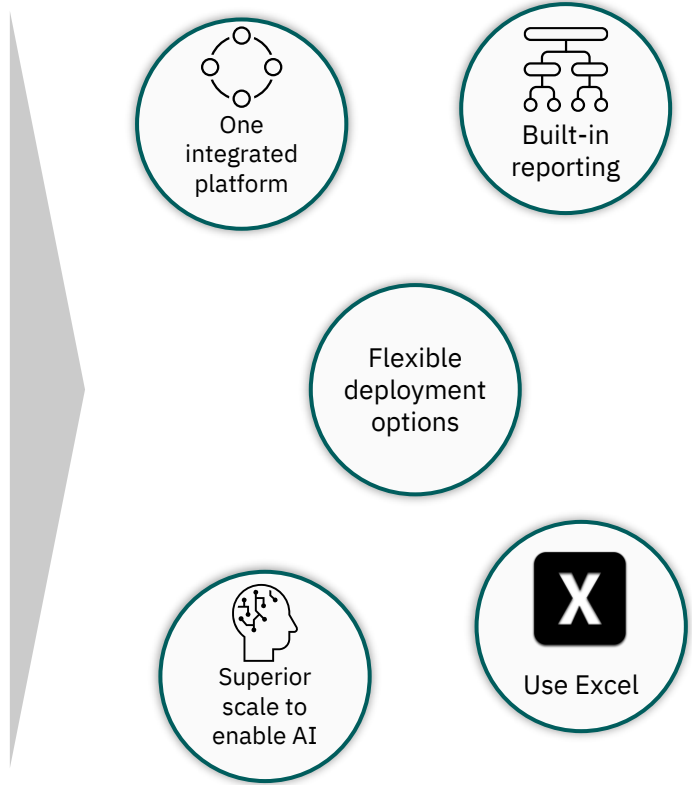
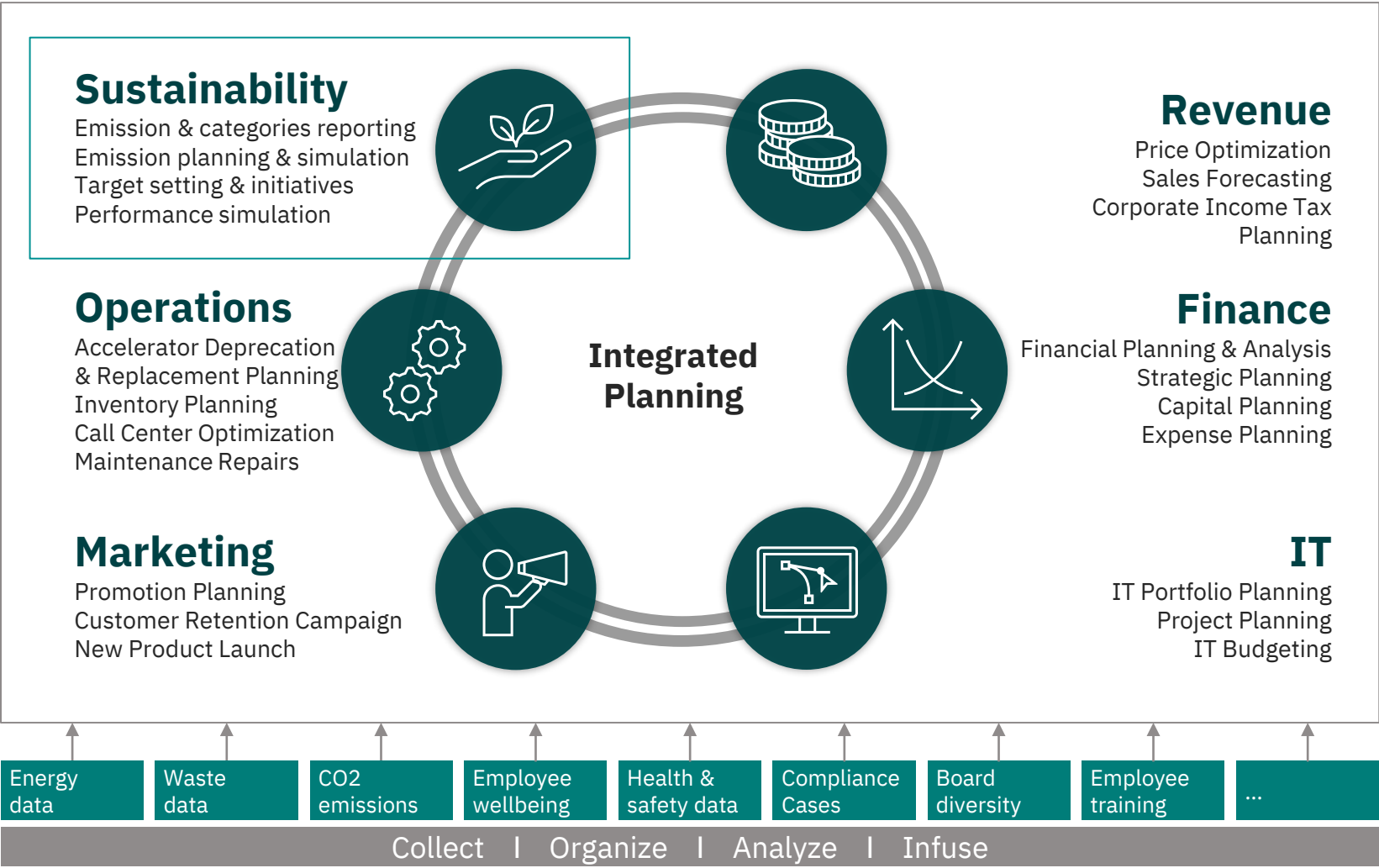
- Access, management and operationalization of sustainability data across siloed sources and evolving reporting datasets
- Slow integration of sustainability planning, reporting and result analysis into financial and business planning
- Pressure to move from data management to actions with impact
- Diverse Stakeholder demands for transparency and accuracy from Leadership, regulators, investors, and customers
- Lack of standardized industry reporting metrics
- Lack of data quality and accuracy as basis



# Additional IBM ESG, Climate Risk and Carbon Reporting Tools & capabilities that complement the solution demonstrated



# IBM Planning Analytics supports planning, reporting and analysis of sustainability data as part of integrated planning

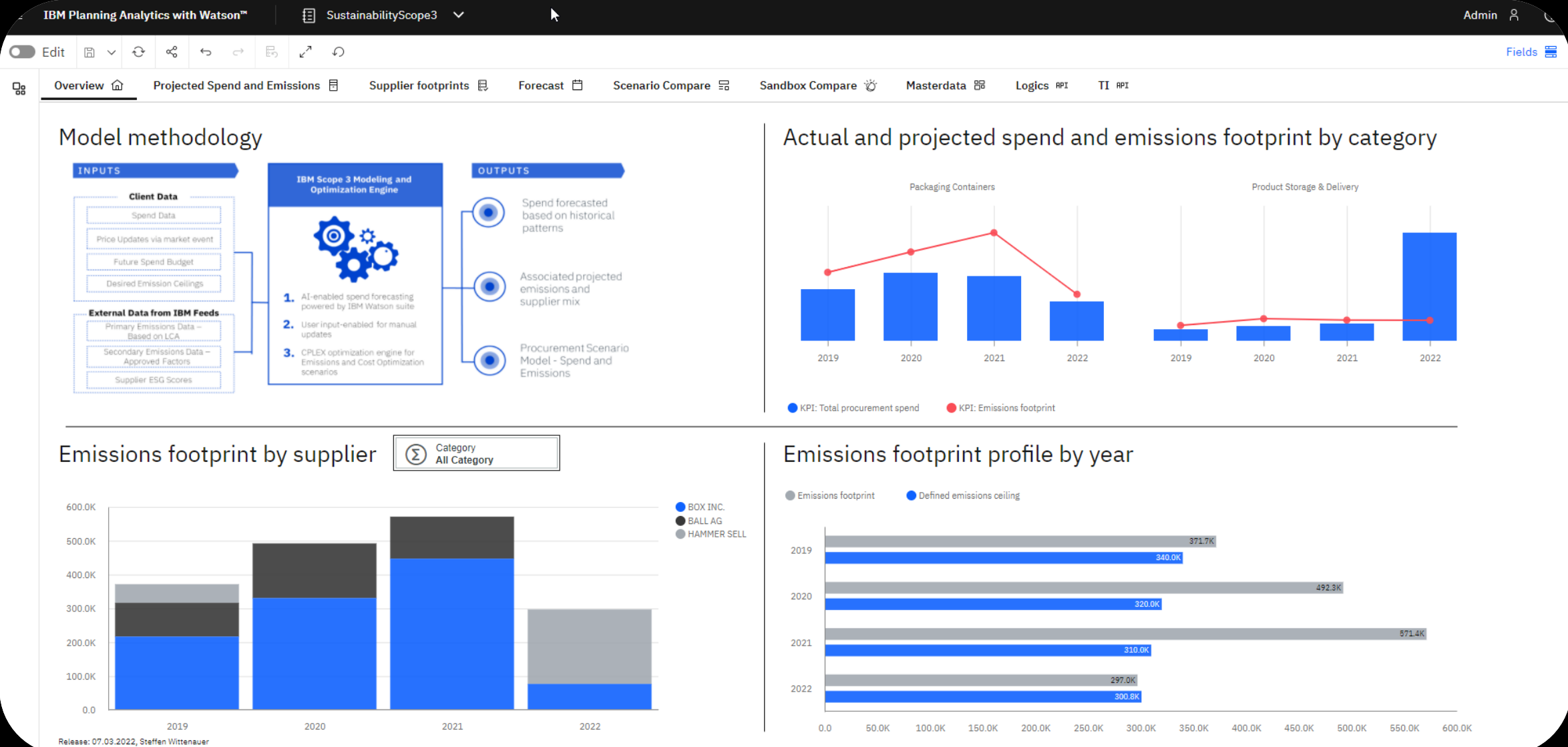


Available: on premise (local) or IBM SaaS

# Scope 3-reporting / -planning / -simulation

- Purpose: possible starting point for each client having not yet any reporting or target-setting for sustainability scope 3 – especially in the procurement-department
- Content: based on footprints (CO2, costs etc.) and material-demand & cost-budget, a client can simulate the scope 3-effect vs. occurring costs
- Datasources: masterdata can be manually adapted – actuals can be loaded (files, datawarehouse etc.) or manually inputted
- Technology: IBM Planning Analytics, ILOG CPLEX (as addit. optimization-component for sustainability vs. costs)

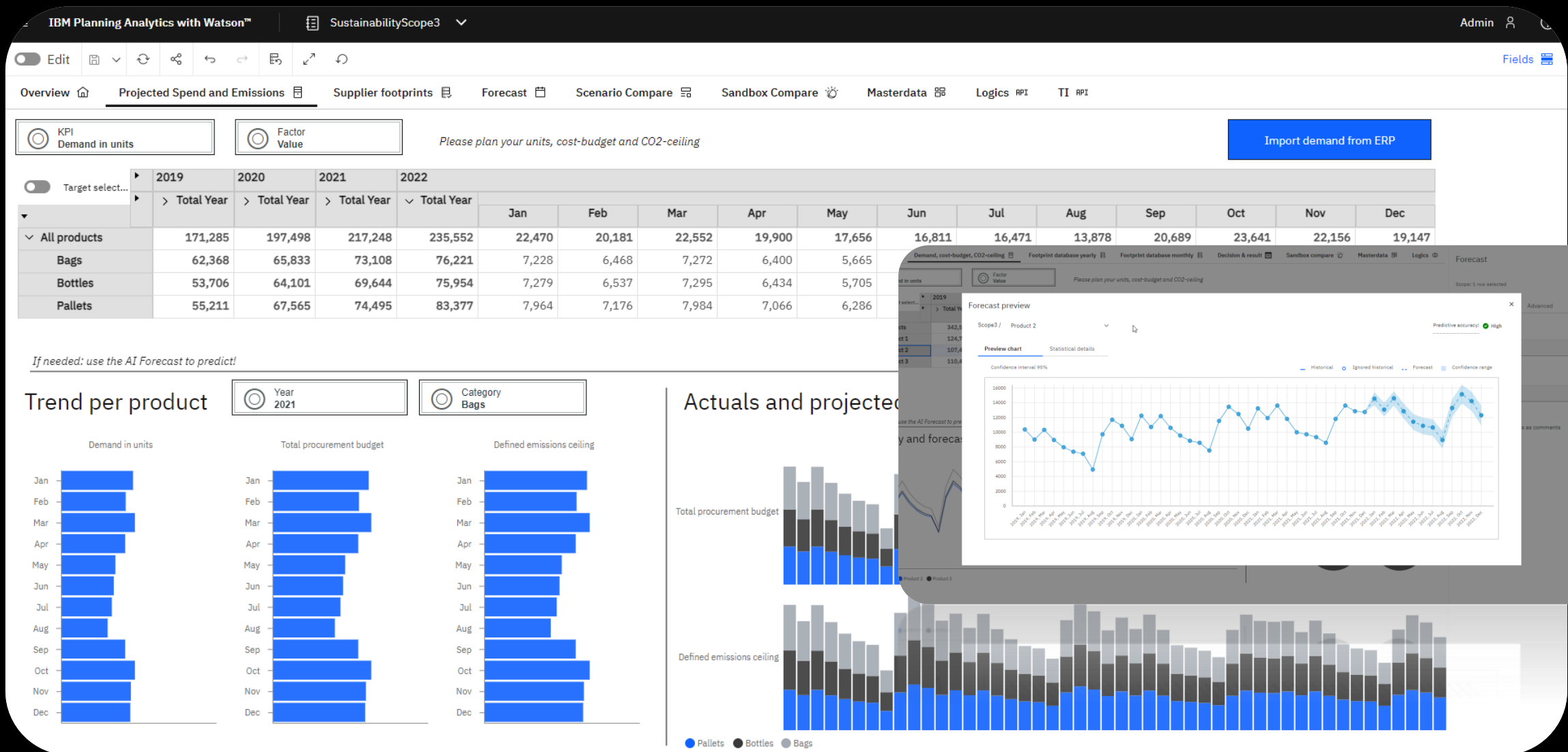
# Scope3-landingpage with a KPI-overview



The defined main-KPIs and display of the process



# Plan your future (unit-demand, cost-budget, CO2-budget)



*If data is not available in source-systems like ERP etc., units and budgets can be inputted or forecasted*

# Load/input ESG-footprints incl. costs and ESG-ratings for possible suppliers

IBM Planning Analytics with Watson™ SustainabilityScope3 Admin

Overview Projected Spend and Emissions **Supplier footprints** Forecast Scenario Compare Sandbox Compare Masterdata Logics RPI TI RPI

ProductScope3 Bags Footprint per 1 unit

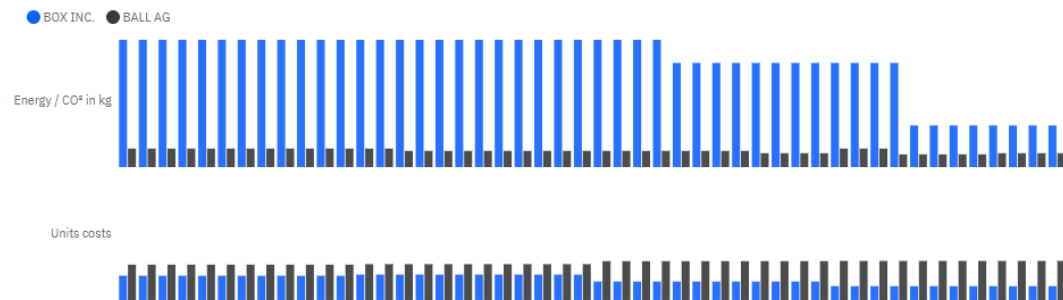
		Total Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
BOX INC.	2019	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050	1.050
	2020	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100	1.100
	2021	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800
	2022	0.600	0.600	0.600	0.600	0.600	0.600	0.600	0.600	0.600	0.600	0.600	0.600	0.600
BALL AG	2019	1.530	1.530	1.530	1.530	1.530	1.530	1.530	1.530	1.530	1.530	1.530	1.530	1.530
	2020	1.550	1.550	1.550	1.550	1.550	1.550	1.550	1.550	1.550	1.550	1.550	1.550	1.550
	2021	1.680	1.680	1.680	1.680	1.680	1.680	1.680	1.680	1.680	1.680	1.680	1.680	1.680
	2022	1.690	1.690	1.690	1.690	1.690	1.690	1.690	1.690	1.690	1.690	1.690	1.690	1.690
HAMMER SELL	2019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	2020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	2021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	2022	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

FootprintType Units costs

Check outliers

Load costs/footprints

## Supplier costs and footprints per month



## General ESG ratings

Target selecting ESG rating Supplier

	2019	2020	2021	2022
BOX INC.	100.0%	100.0%	100.0%	100.0%
BALL AG	90.0%	95.0%	95.0%	95.0%
HAMMER SELL	70.0%	80.0%	90.0%	90.0%

The general supplier rating is an addit. factor to weight/influence the footprint for your decision. If you don't want to use it - set it to 100%.

Load or input the different footprints like CO<sub>2</sub> or costs on a yearly or monthly basis per product, supplier etc.

# Plan, simulate or optimize your corporate plan concerning units, suppliers, scope 3-footprint, costs etc.

IBM Planning Analytics with Watson™ SustainabilityScope3

Admin

Overview Projected Spend and Emissions Supplier footprints **Forecast** Scenario Compare Sandbox Compare Masterdata Logics RPI TI RPI

Target selecting

Order in units													
Total Year		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total supplier	73,108	6,957	6,253	7,141	6,198	5,252	5,102	4,912	4,508	6,198	7,140	6,751	6,696
BOX INC.	46,323	6,957	6,253	7,141	6,198	5,252	5,102	4,912	4,508	0	0	0	0
BALL AG	26,785	0	0	0	0	0	0	0	0	6,198	7,140	6,751	6,696
HAMMER SELL	0	0	0	0	0	0	0	0	0	0	0	0	0

Year 2021  
ProductScope3 Bags  
Scenario Actuals/Projected

Optimize plan (CPLEX-mechanism)

Total Year		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Remaining demand in units	0	0	0	0	0	0	0	0	0	0	0	0	0
Demand in units	73,108	6,957	6,253	7,141	6,198	5,252	5,102	4,912	4,508	6,198	7,140	6,751	6,696
Order in units	73,108	6,957	6,253	7,141	6,198	5,252	5,102	4,912					
Remaining procurement budget	\$15,533	\$3,721	\$3,344	\$3,819	\$3,315	\$2,809	\$2,729	\$2,627					
Total procurement budget	\$97,591	\$9,287	\$8,347	\$9,532	\$8,274	\$7,011	\$6,810	\$6,557					
Total procurement spend	\$82,058	\$5,566	\$5,002	\$5,713	\$4,959	\$4,202	\$4,081	\$3,930					
Remaining CO2 footprint	-146,752	-28,337	-25,468	-29,085	-25,246	-16,140	-15,678	-15,095					
Defined emissions ceiling	104,321	9,927	8,922	10,190	8,845	7,494	7,280	7,009					
Emissions footprint (weighted)	251,919	38,264	34,390	39,274	34,091	23,634	22,958	22,105					
Emissions footprint	251,073	38,264	34,390	39,274	34,091	23,634	22,958	22,105					

Review Parameters for OptimizationStart

Prompt	Value
Please describe scenario	
Which scenario is the source?	Actuals/Projected
Which scenario shall be filled?	Pick an element
What is the priority-weighting in % for the optimization of CO2? Rest to 100% will be the priority of costs.	60
Is it allowed to overrun the CO2-budget? (0 = no)	1
Is it allowed to overrun the cost-budget? (0 = no)	1
Which is the optimizing year?	2022

KPI compare per supplier

Energy / CO<sup>2</sup> in kg

Units costs

General supplier mix of total cost

2019 2020 2021

BOX INC. BALL AG HAMMER SELL

OK

Find a decision to find the perfect product-supplier-mix concerning your targets incl. optimization in realtime to find your strategy

# Compare the automated calculated scenarios

IBM Planning Analytics with Watson™ SustainabilityScope3 Admin

Overview Projected Spend and Emissions Supplier footprints Forecast Scenario Compare Sandbox Compare Masterdata Logics API TI API

Year 2022

Total Year 2022 Value All Category

AllElements\_wo... Selection Optimized

Target selecting

		Optimized 1 (Cost optimized)	Optimized 2 (Carbon optimized)	Optimized 3 (Mixed focus price (60: 40))	Optimized 4 (Mixed focus carbon (40: 60))
Total supplier	Total procurement spend	\$849,504	\$958,410	\$936,814	\$879,059
	Emissions footprint	467,103	200,535	210,998	273,873
BOX INC.	Total procurement spend	\$350,844	\$289,409	\$305,337	\$334,649
	Emissions footprint	239,164	20,982	32,529	120,466
BALL AG	Total procurement spend	\$66,314	\$314,526	\$287,243	\$176,371
	Emissions footprint	26,539	109,280	104,135	66,206
HAMMER SELL	Total procurement spend	\$432,346	\$354,475	\$344,234	\$368,040
	Emissions footprint	201,401	70,272	74,333	87,201

Target selecting

	Optimized 1 (Cost optimized)	Optimized 2 (Carbon optimized)	Optimized 3 (Mixed focus price (60: 40))	Optimized 4 (Mixed focus carbon (40: 60))
ExecutedByUser	Admin	Admin	Admin	Admin
ExecutedTime	2022-03-07 - 12:17:39	2022-03-03 - 15:55:27	2022-03-02 - 20:04:16	2022-03-02 - 19:50:36
CO2Priority	0%	90%	60%	40%
CostPriority	100%	10%	40%	60%
OverrunCO2Allowed	Yes	Yes	Yes	Yes
OverrunCostsAllowed	Yes	Yes	Yes	Yes

Optimize plan (CPLEX-mechanism) Export results

### Supplier-share per scenario per KPI

BOX INC. BALL AG HAMMER SELL

Total procurement spend

Emissions footprint

### Scenario compare: costs vs. sustainability

KPI: Emissions footprint

KPI: Total procurement spend

Compare the calculated options incl. the parameters and analyse all forecasted details on all levels of the model in realtime-speed for an optimized decision

# Compare your realtime simulation/sandboxes and decide for your future

IBM Planning Analytics with Watson™ SustainabilityScope3

Admin

Overview Projected Spend and Emissions Supplier footprints Forecast Scenario Compare **Sandbox Compare** Masterdata Logics API TI API

Scenario Optimized 1

Total Year Total supplier All products

Selection AIIN

Target selecting

		2019	2020	2021	2022
Remaining demand in units	Base	0	0	0	0
	best case	0	0	0	0
Demand in units	Base	171,285	197,498	217,248	237,341
	best case	171,285	197,498	217,248	237,341
Order in units	Base	171,285	197,498	217,248	237,341
	best case	171,285	197,498	217,248	237,341
Remaining procurement budget	Base	-\$143,321	-\$315,923	-\$337,361	-\$569,504
	best case	-\$143,321	-\$315,923	-\$337,361	<b>-\$539,166</b>
Total procurement budget	Base	\$320,000	\$295,000	\$290,000	\$280,000
	best case	\$320,000	\$295,000	\$290,000	\$280,000
Total procurement spend	Base	\$463,321	\$610,923	\$627,361	\$849,504
	best case	\$463,321	\$610,923	\$627,361	<b>\$819,166</b>
Remaining CO2 footprint	Base	-31,706	-172,318	-156,927	-166,340
	best case	-31,706	-172,318	-156,927	<b>-36,237</b>
Defined emissions ceiling	Base	340,000	320,000	310,000	300,764
	best case	340,000	320,000	310,000	300,764
Emissions footprint (weighted)	Base	406,400	500,822	474,311	490,878
	best case	406,400	500,822	474,311	<b>360,775</b>
Emissions footprint	Base	371,706	492,318	466,927	467,103
	best case	371,706	492,318	466,927	<b>337,000</b>

Target selecting

			Footprint per 1 unit					
			Bags		Bottles		Pallets	
			Energy / CO²...	Units costs	Energy / CO²...	Units costs	Energy / CO²...	Units costs
BOX INC.	2019	Base	5.500	1.050	1.230	1.500	1.230	1.500
		best case	5.500	1.050	1.230	1.500	1.230	1.500
	2020	Base	5.500	1.100	1.450	1.600	1.450	1.600
		best case	5.500	1.100	1.450	1.600	1.450	1.600
	2021	Base	4.833	0.800	1.230	1.700	1.230	1.700
		best case	4.833	0.800	1.230	1.700	1.230	1.700
2022	Base	2.700	0.600	1.450	13.167	1.450	13.167	
	best case	1.000	0.200	1.450	13.167	1.450	13.167	
BALL AG	2019	Base	0.800	1.530	2.017	5.403	2.017	5.403
		best case	0.800	1.530	2.017	5.403	2.017	5.403
	2020	Base	0.717	1.550	2.258	6.550	2.258	6.550
		best case	0.717	1.550	2.258	6.550	2.258	6.550

Year 2022 KPI Total procurement spend

Base best case

2022

62.0% 32.7%

64.3% 33.9%

KPI: Total procurement spend

1000000

500000

0

2019 2020 2021 2022

Open in realtime scenarios („sandboxes“) and simulate a parameter-change (footprint, units etc.) through the whole model

# Why using IBM Planning Analytics for sustainability-topics?

- IBM is offering one platform for reporting /-planning or –simulation - addressing the sustainability-usecases for **all stakeholders**.
- **Link sustainability-results directly to existing other plans** like cost-planning, P&L or balance.
- The solution is able to **simulate in realtime** changes of all factors, drivers or parameters – the endusers can directly check sandboxing-results in the balance or other result-outcomes.
- The solution can handle **all types of masterdata** like products, material, regions, Accelerators, supply chain-processes etc. and can be flexible **adjusted by the business department**.
- No limitation for emission factors - ability to **create flexible new emission factors**. No limitation of userinterface languages.
- IBM Planning Analytics is a **mature native analytics-application** which can handle billions of datarecords in realtime-speed. Furthermore, the seamless analysis on all levels or aggregations through the whole data is possible.
- IBM Planning Analytics is **part of the integrated IBM Analytics portfolio** - other components like IBM Cognos Analytics, Watson Studio or ILOG CPLEX can enrich the solution (CP4D etc.).

