



3DEXPERIENCE®

J.P. Morgan: Digital Twin and Industrial Design Software Week

Dassault Systèmes

November 10 2022

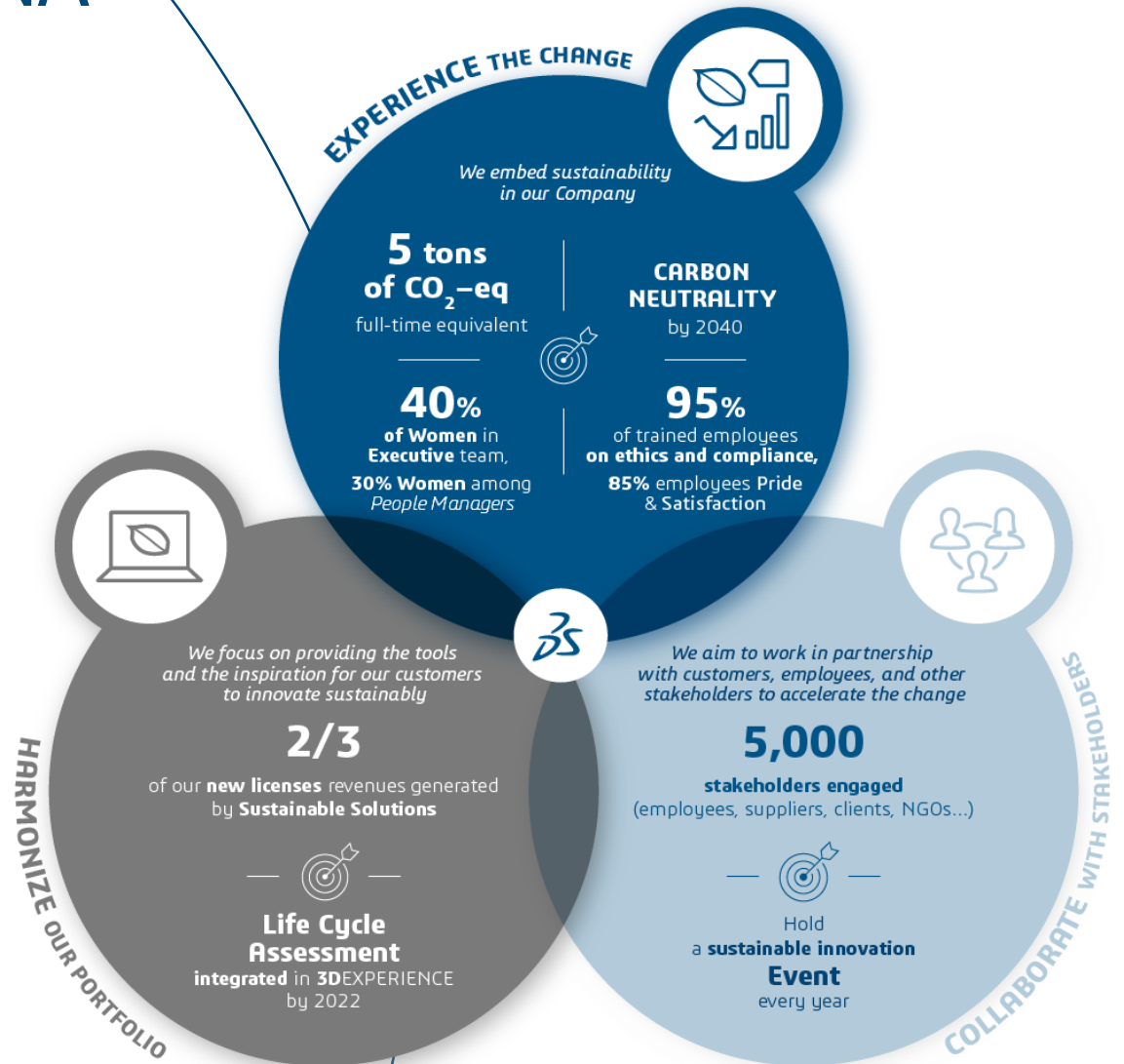
Our purpose

“**Dassault Systèmes** provides business & people with **3DEXPERIENCE®** universes to imagine sustainable innovations capable of **harmonizing product, nature and life.**”



Sustainability is part of our DNA

Our Sustainability Compass guides us, while our governance processes maintain a high level of accountability within our organization on the topic of Sustainability.



Unless mentioned, all targets are by 2025

Our Heritage & Ambition



1981
**3D
Design**

1989
**3D DMU
Digital
Mock-up**

1999
**3D PLM
Product Lifecycle
Management**

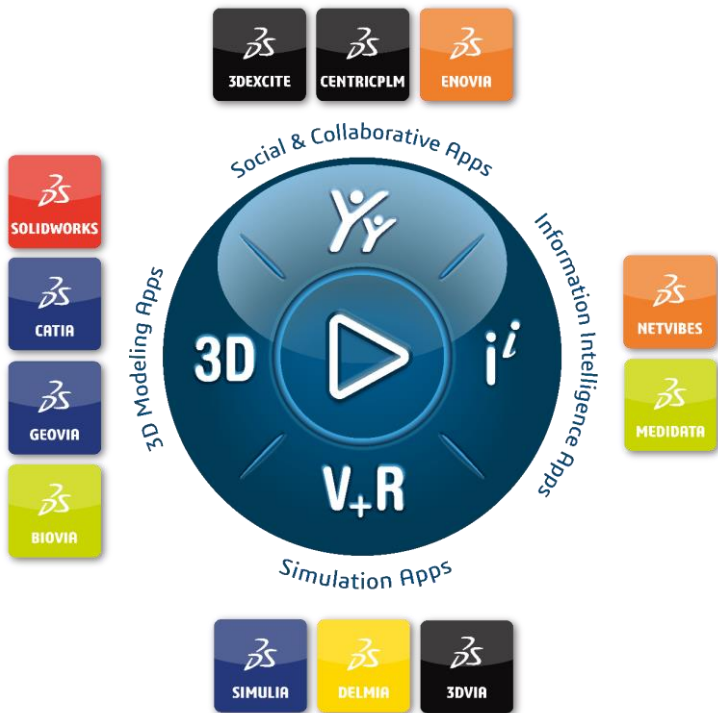


2012
**3DEXPERIENCE®
platform**

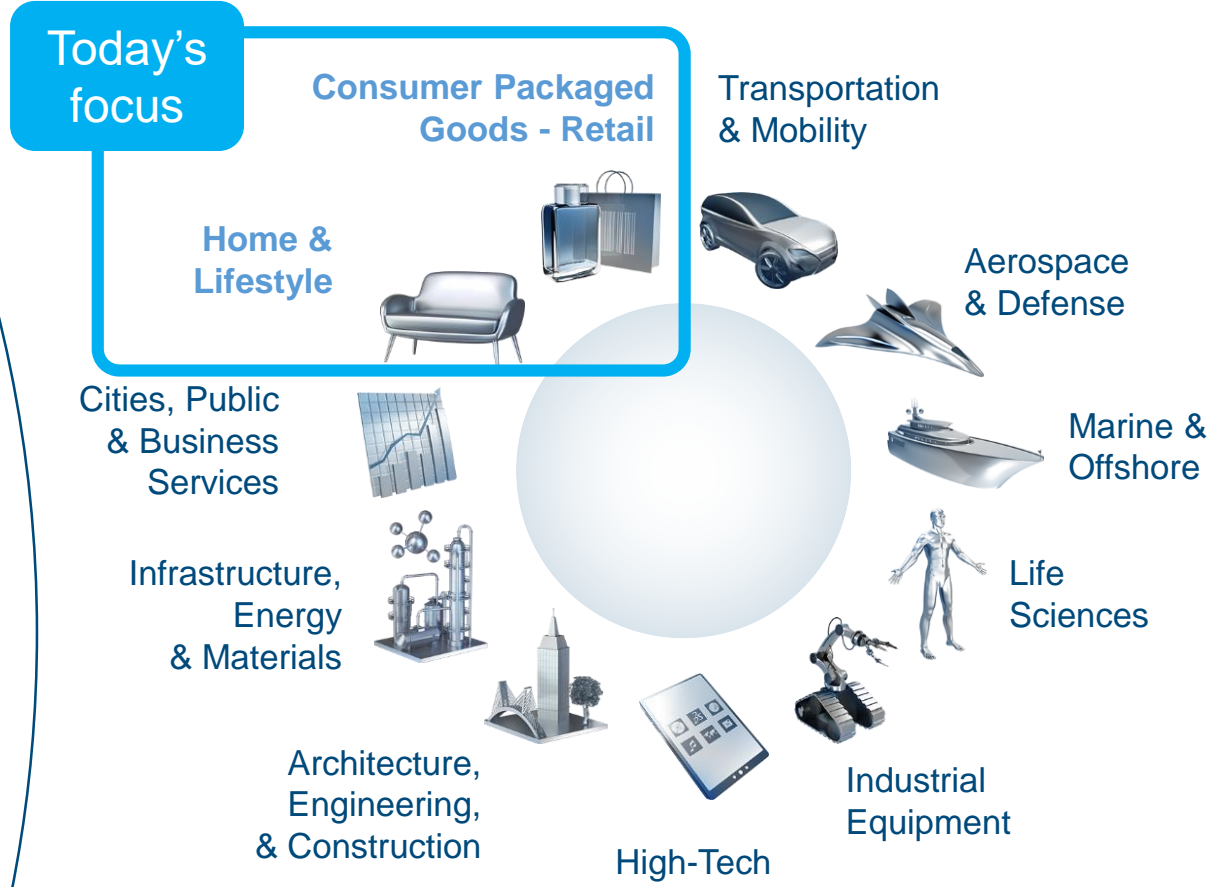


2020
**Virtual Twin
Experience
of **Humans****

our brand applications...



...for 11 industries



Our clients in consumer-driven Industries



Home & Lifestyle

50.000 customers



CPG-Retail

8.000 customers



Value creation with leaders of the CPG & Retail Industry



Metsä

Perfect Package

- Maximizing product performance while minimizing both carbon footprint and costs.
- Propose new packaging solutions 85% faster.



Perfect Production

- Optimize recipe in context of Production
- Improved ability to adapt to disruptions
- Managed all recipe complexity in less time

L'ORÉAL PARIS

- “increased product traceability 10 times”



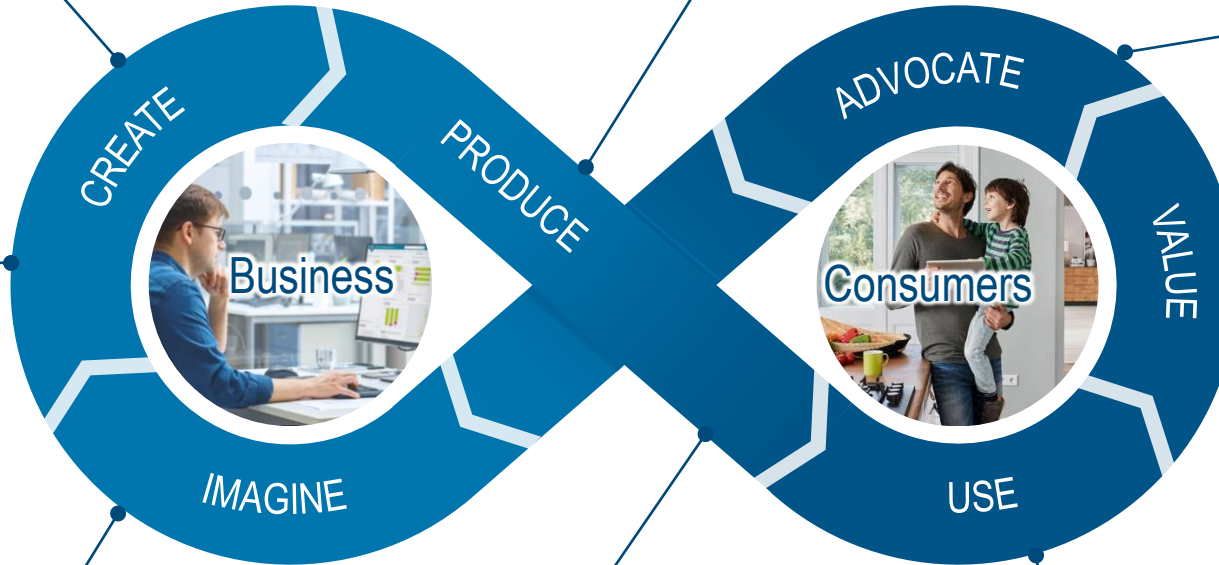
MEDIDATA

- “Danone Captures the Best Quality Patient-reported Outcome Data Possible for Key Gastrointestinal Study”



Perfect Formulation

- +2000 users (+50sites) across R&D, Product Supply, Quality and other disciplines to support the design and products development



Virtual Twin of Humans



- Production Twin for Regenerative skin cells



ROQUETTE
Offering the best of nature™

Perfect Lab

- Increased innovation efficiency
- Eliminate ‘Dark Data’
- Automated preparation and combination of data



Perfect Logistics

- “Real-time insights to make the right logistics decisions swiftly, improve on-shelf availability and increase customer satisfaction”

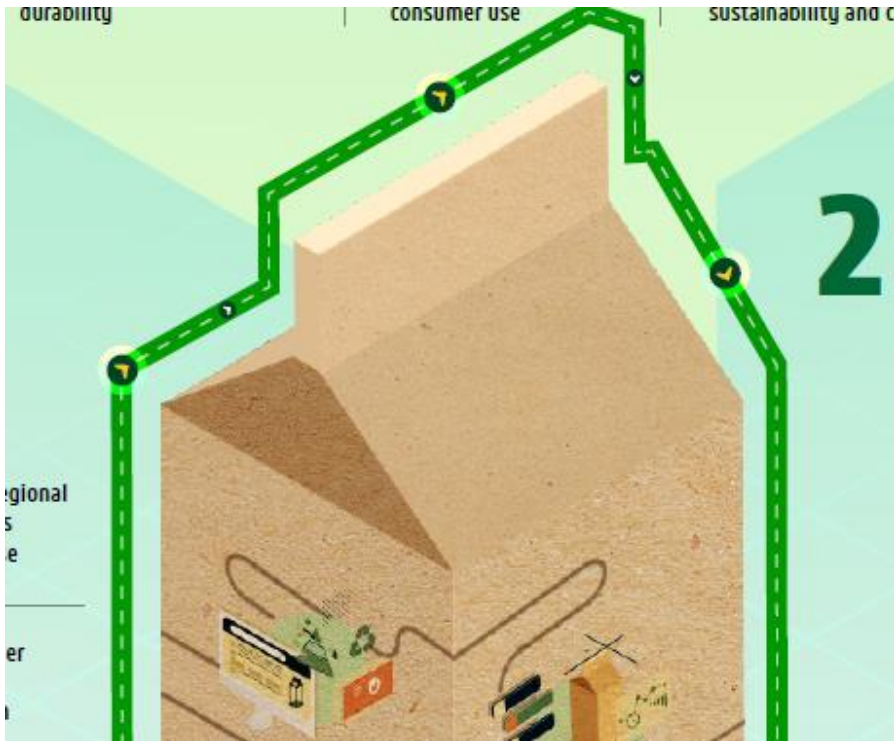
Perfect Product Staging



- Boost on-time, in-full (OTIF) rates by up to 10%
- Improve forward sales position by up to 50%

Voice of our Customers: what do they ask us ?

SUSTAINABILITY



SCIENCE



SUPPLY

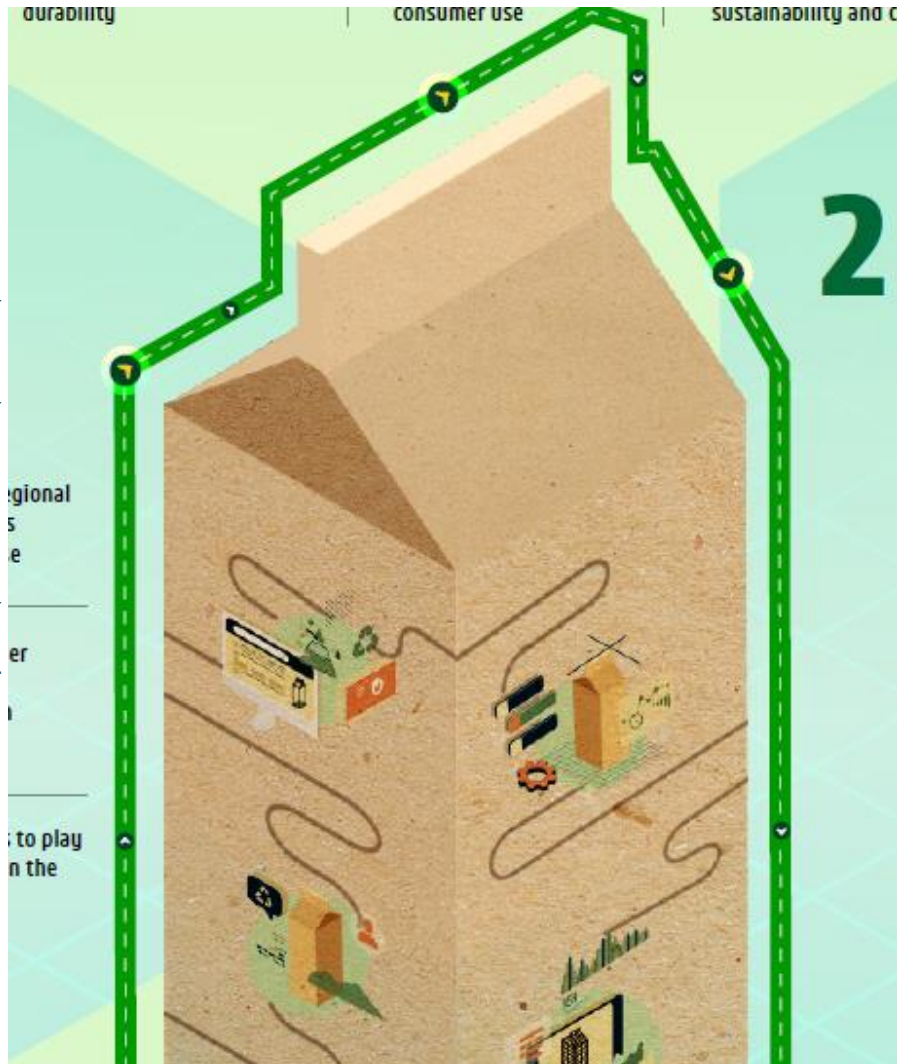



EXPERIENCES



Voice of our Customers: what they ask us on **Sustainability**


SUSTAINABILITY



 Luxury : “ **How can I measure and improve the sustainability index of my retail concepts in all duty free worldwide ?** ”

 Footwear : “ **How can I reposition my brand on local manufacturing, sustainable materials and personalization ?** ”

 Lighting: “ **How can I develop better lighting solutions for Urban farming ?** ”

 Food & beverage: “ **How can I reinsource packaging design to reach my sustainability targets for packaging in 2025 ?** ”

Our answers are based on the Virtual Twin. Eg : Packaging



Sustainability-embedded design

The screenshot displays the 3DEXPERIENCE software interface for an Eco-Design Assessment. The top navigation bar shows the user 'Shubham KHEDKAR' and the current project 'LIVIA Sustainable Bottle'. The main window is divided into two panes: a 3D model viewer on the left and an assessment dashboard on the right.

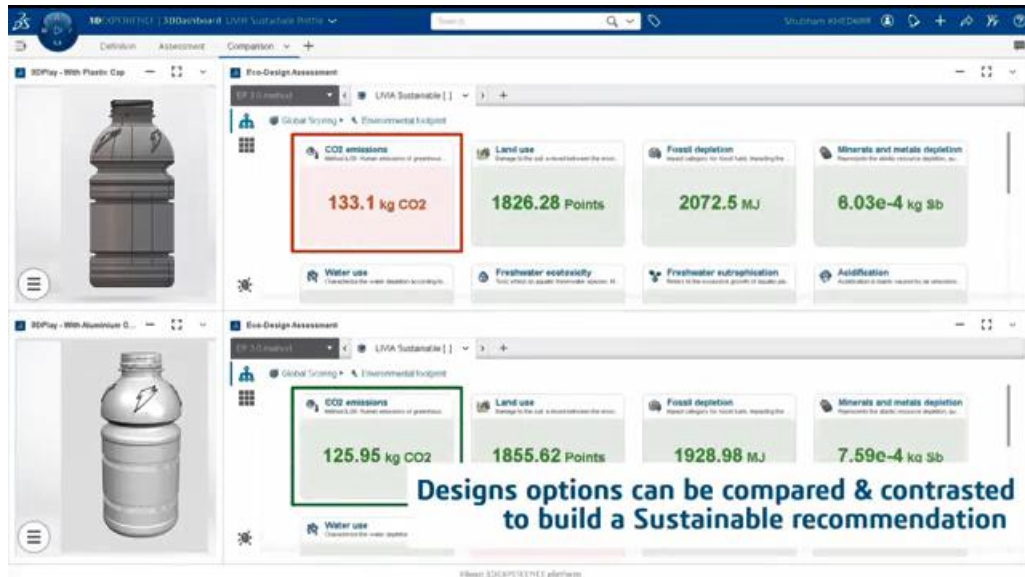
3DPlay - With Aluminium Cap

Eco-Design Assessment

EF 3.0 method | LIVIA Sustainable [...]

Metric	Value
CO2 emissions	125.95 kg CO2
Land use	1855.62 Points
Fossil depletion	1928.98 MJ
Minerals and metals depletion	7.59e-4 kg Sb
Water use	62.07 m3 world deprived
Freshwater ecotoxicity	11681.76 CTUe
Freshwater eutrophication	0.0446 kg PO4
Acidification	0.6316 mol H+
Marine eutrophication	0.1996 kg N
Terrestrial eutrophication	
Photochemical ozone creati...	
Respiratory effects	

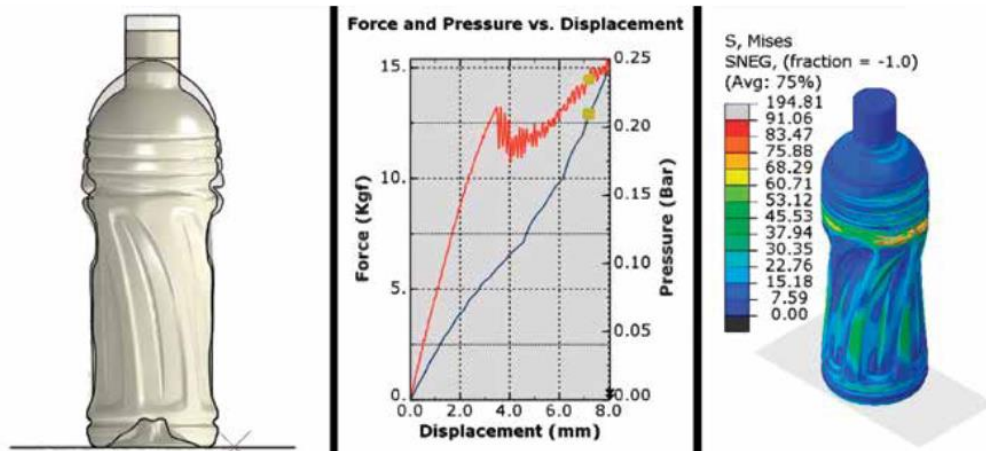
The virtual twin of the package: a business reality



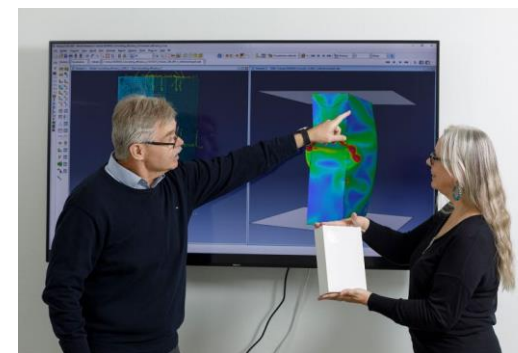
PepsiCo benefits

- Adherence to Sustainability Objectives
- Faster execution with Predictive Modeling for Packaging
- M\$ Annual Benefit

Metsä Board

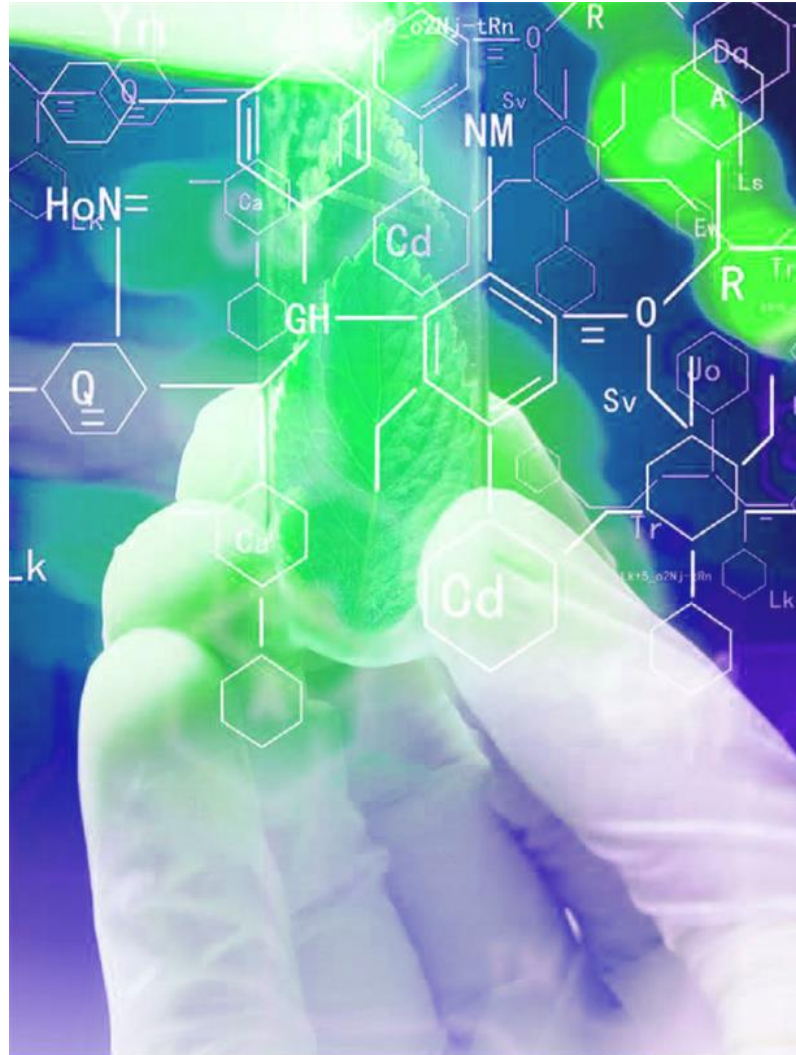



By leveraging a Virtual First to test products virtually before performing any physical tests, PepsiCo ensures that new packaging will pass all requirements.




Voice of our Customers : what they ask us related to **Science**


SCIENCE



 **Cosmetics :**
“How do I simulate biodisponibility and skin permeation, and how do I enter the consumer self care segment” ?

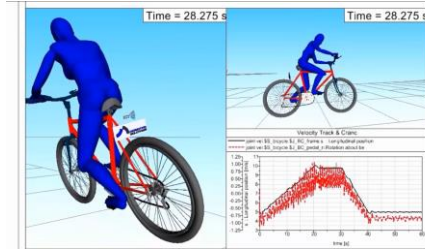
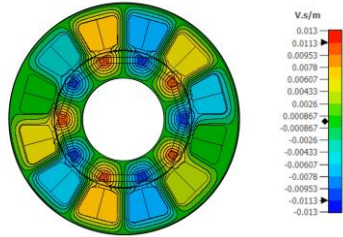
 **Bicycles:**
“How do I create new smart bikes and learn from usage data ?”

 **Venture capitalist :**
“How do I help my portfolio of startups in reformulating faster with natural ingredients ?”

 **Alternative proteins:**
“How can I scale up my production of insects ?”

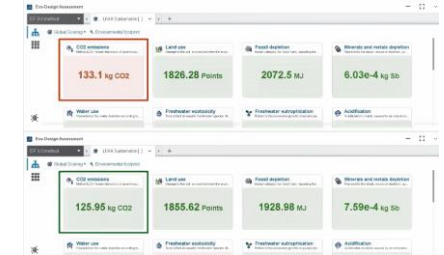
Science-driven Virtual Twins = product differentiation

Electromagnetic Performance studies



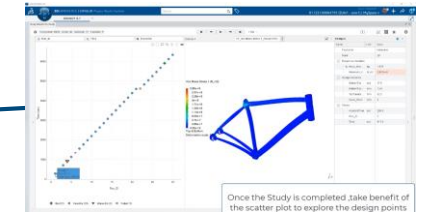
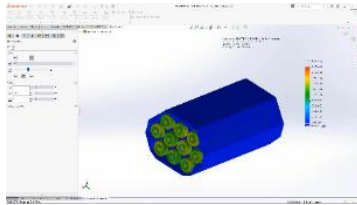
Multibody system simulation

Science-driven Virtual Twin



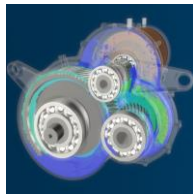
Sustainability Assessment

Thermal studies



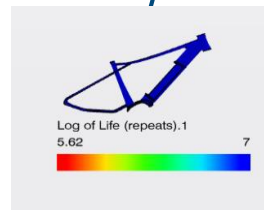
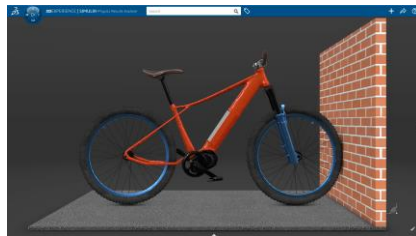
Parametric Optimization

Lubrication studies



Topologic Optimization

Strength & stiffness studies



Light weighting



Detailed Design



Conceptual Design

Performances studies

Science-driven Virtual Twin of Formulated Goods

regulatory compliance

Item	PK	Description	Revision	Qty	Weight (%)	Energy (%)	Moisture (%)	Protein (%)	Yield (%)	Cost	Batch
Milk Chocolate Bar	1	100	50	270	25.0	1.3	30.0	1.0	0.0		
Chocolate	1	0	100	100							
Dark Milk Powder	1	15	140	200	97	147	207	0.0	23		
Skim Milk Powder	1	14	145	200	97	14	0	0.0			
Whole Milk Powder	1	0	100	100	0	0	0	0.0			

product specifications

Name	Specification Title	Revision	Net L	State	PK	Qty	Unit Of Measure	Design Collaboration	Change Control
PRELIM 00000	PRELIM 00000	1	Preliminary	1	1.0	EA	EA	True	True
PRELIM 00001	PRELIM 00001	1	Preliminary	1	1.0	EA	EA	True	True
PRELIM 00002	PRELIM 00002	1	Preliminary	1	1.0	EA	EA	True	True
PRELIM 00003	PRELIM 00003	1	Preliminary	1	1.0	EA	EA	True	True
PRELIM 00004	PRELIM 00004	1	Preliminary	1	1.0	EA	EA	True	True
PRELIM 00005	PRELIM 00005	1	Preliminary	1	1.0	EA	EA	True	True
PRELIM 00006	PRELIM 00006	1	Preliminary	1	1.0	EA	EA	True	True
PRELIM 00007	PRELIM 00007	1	Preliminary	1	1.0	EA	EA	True	True
PRELIM 00008	PRELIM 00008	1	Preliminary	1	1.0	EA	EA	True	True
PRELIM 00009	PRELIM 00009	1	Preliminary	1	1.0	EA	EA	True	True
PRELIM 00010	PRELIM 00010	1	Preliminary	1	1.0	EA	EA	True	True

formula & recipe development

Type	PK	Name	Revision	Qty	Weight (%)	Energy (%)	Moisture (%)	Protein (%)	Yield (%)	Cost	Batch
Milk Chocolate Bar	1	100	50	270	25.0	1.3	30.0	1.0	0.0		
Chocolate	1	0	100	100							
Dark Milk Powder	1	15	140	200	97	147	207	0.0	23		
Skim Milk Powder	1	14	145	200	97	14	0	0.0			
Whole Milk Powder	1	0	100	100	0	0	0	0.0			



nutritional optimization

Item	PK	Description	Revision	Qty	Weight (%)	Energy (%)	Moisture (%)	Protein (%)	Yield (%)	Cost	Batch
Milk Chocolate Bar	1	100	50	270	25.0	1.3	30.0	1.0	0.0		
Chocolate	1	0	100	100							
Dark Milk Powder	1	15	140	200	97	147	207	0.0	23		
Skim Milk Powder	1	14	145	200	97	14	0	0.0			
Whole Milk Powder	1	0	100	100	0	0	0	0.0			

Ingredients specifications

PK	Name	Revision	Qty	Weight (%)	Energy (%)	Moisture (%)	Protein (%)	Yield (%)	Cost	Batch
1	Chocolate	1	0	100						
1	Dark Milk Powder	1	15	140	97	147	207	0.0	23	
1	Skim Milk Powder	1	14	145	97	14	0	0.0		
1	Whole Milk Powder	1	0	100	0	0	0	0.0		

nutritional facts

Type	PK	Name	PK	Protein	Vitamin E	Vitamin K	Vitamin C	Fiber	Vitamin B	Description
Recipe	2	Milk Choc	10.00	0	0	0	0	0	0	Milk Chocolate
Ingredient	7	Mango	20.0	0	0	0	0	0	0	Artificial Mango Flv
Ingredient	1	Cocoa	20.0	0	0	0	0	0	0	Cocoa solids 10%
Ingredient	5	Cocoa	5	0	0	0	0	0	0	
Ingredient	6	Cocoa	15.7	0	0	0	0	0	0	
Ingredient	8	Sweet	0	0	0	0	0	0	0	Dry White, 100%

Virtual Twins.. of the Human: 'harmonizing product, nature & life'

Multi Discipline



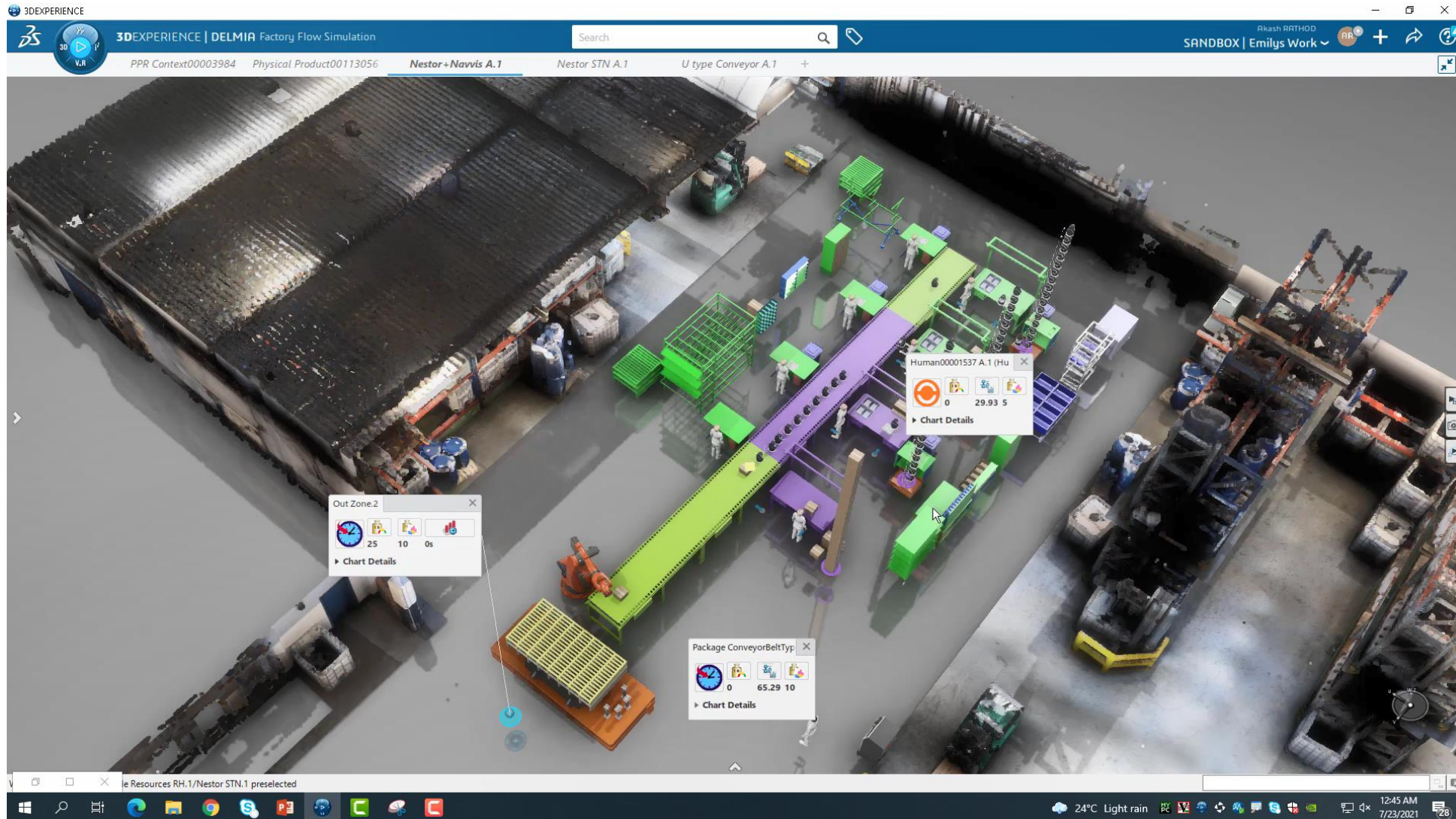
Voice of our Customers : what they ask us on **Supply**

-  Food & Beverage : “ **Are there new ways to make my supply more agile, more resilient and more proactive ?**”
-  Food Trading : “**How can I improve my operations in commodity sourcing in an ever changing context ?**”
-  General Retail & Food Redistribution : “ **How can I improve my logistics, from yard management to home delivery ?** ”
-  Luxury : “ **How can I optimize my secure warehouse to flagship stores process ?** ”
-  Beauty: “**how can I adapt my old plant for more sustainable production and reduce painfulness**” ?

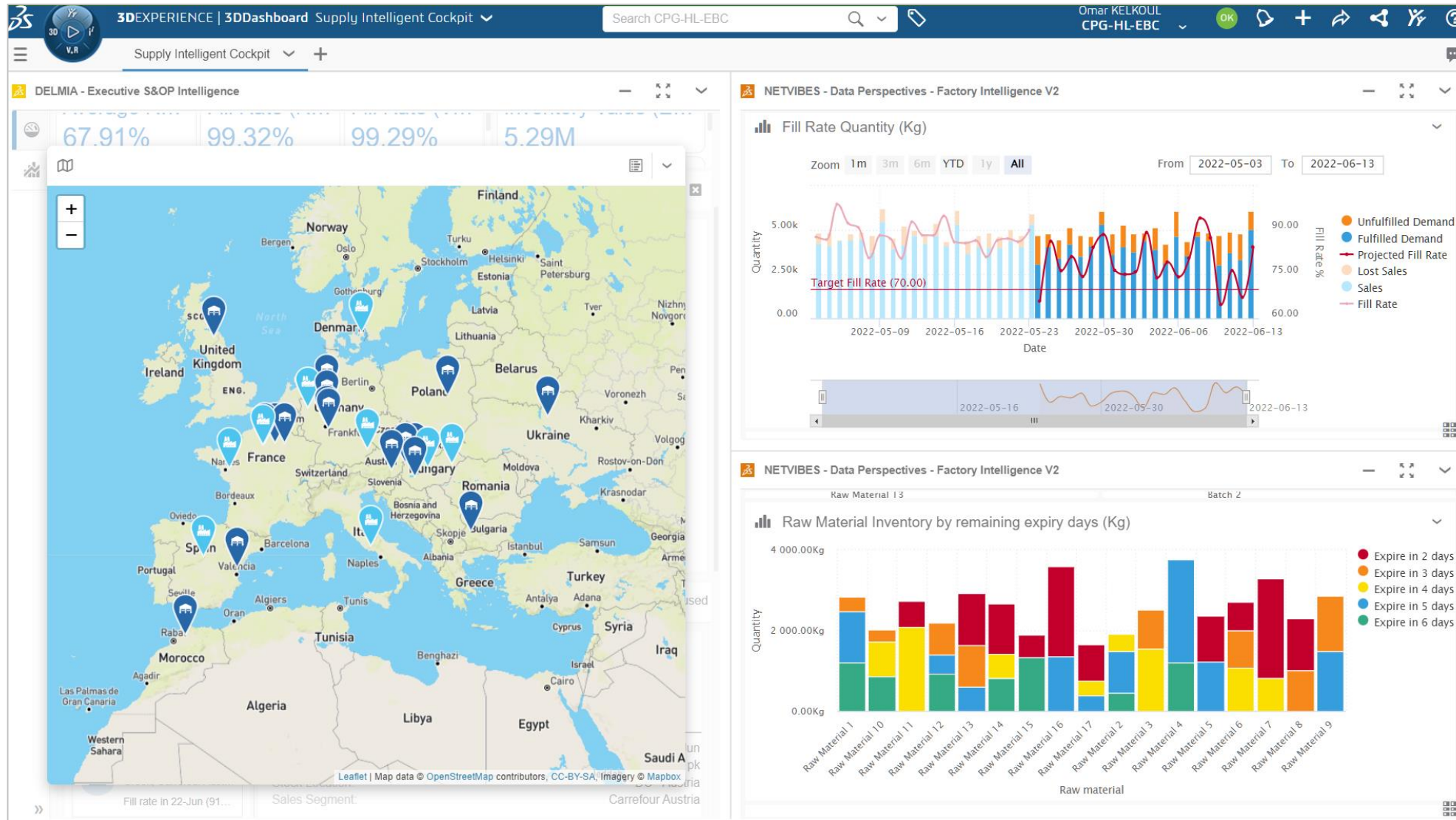
SUPPLY



Virtual twin of the plant: extend and improve the physical world



Virtual twin of the supply: from 'reactive to 'being proactive'



Voice of our Customers : what they ask us on Experiences



Home Goods : “ **How can I reuse engineering data for marketing and sales online experiences ?** ”



Furniture : “ **How can I reach consumers and let them personalize their home in 3D by themselves ?** ”



Beauty & Personal care : “ **How could we leverage digital printing for instant packaging artwork creation ?** ”

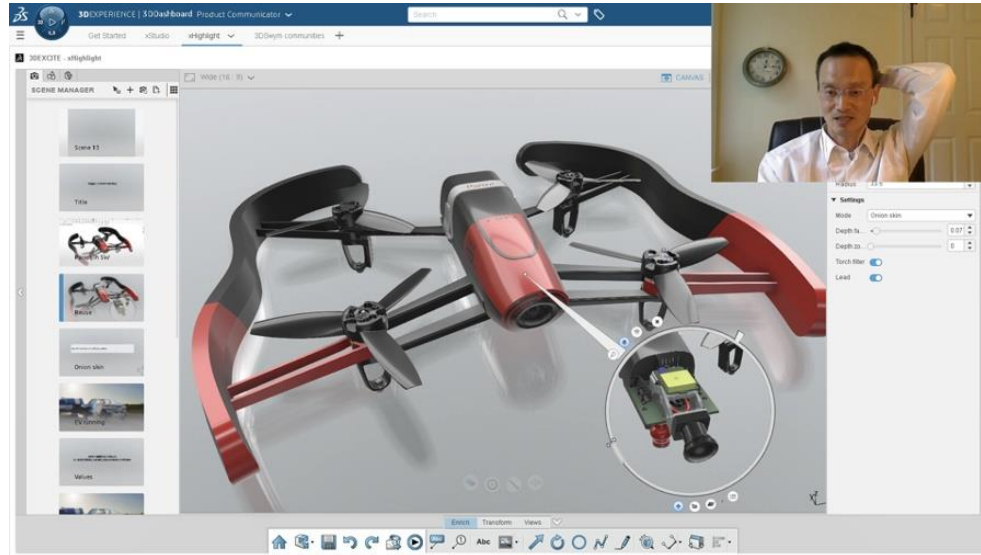


Sports Goods : “**How can I develop next generation sports & leisure goods centered on human experiences ?**”

EXPERIENCES

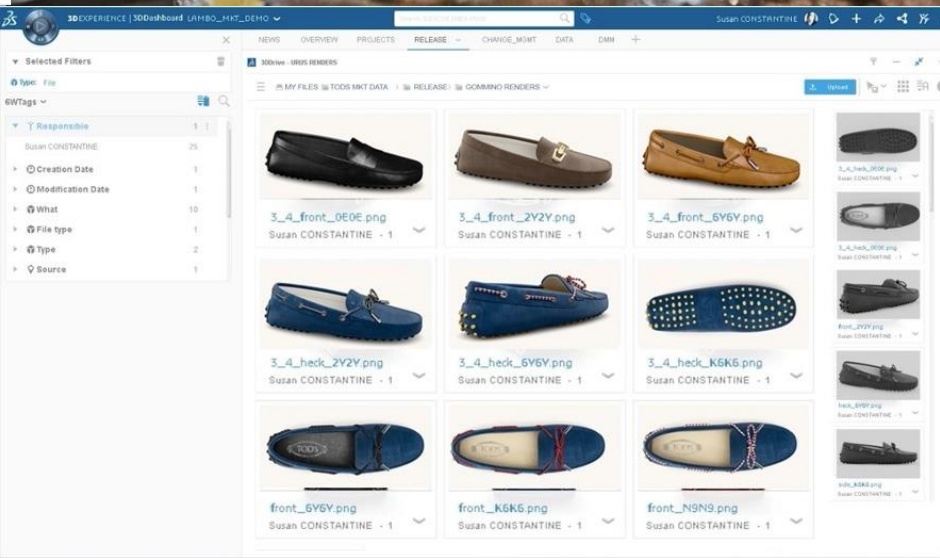
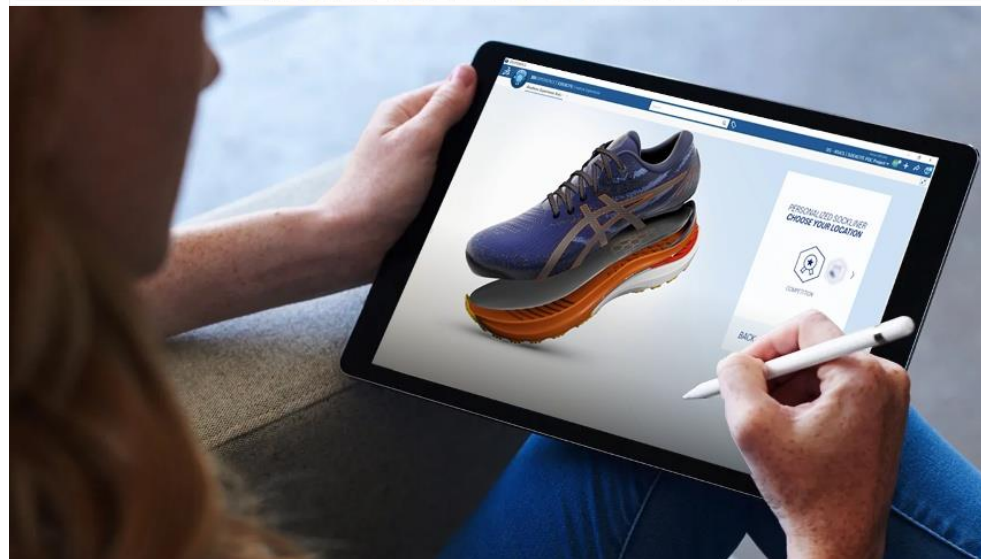


Virtual Twin of the Product – for sales & marketing experiences



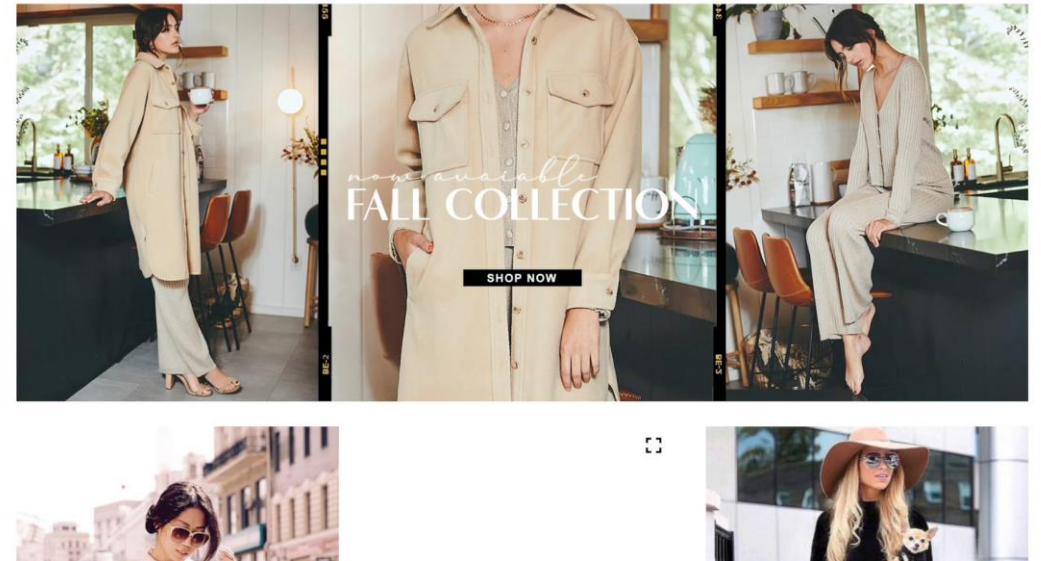
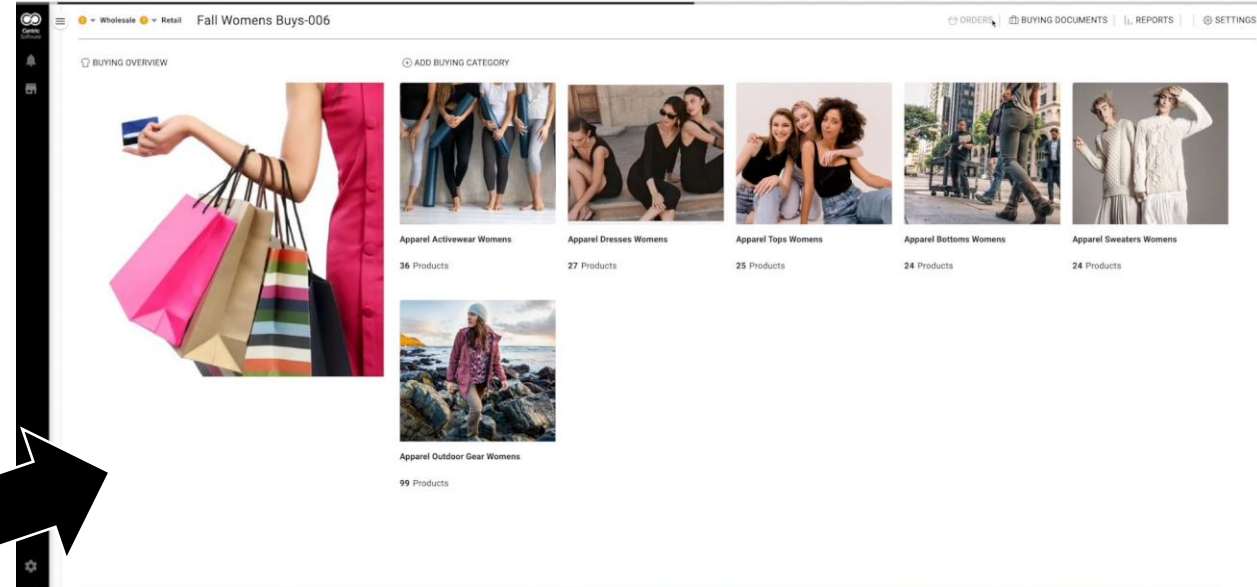
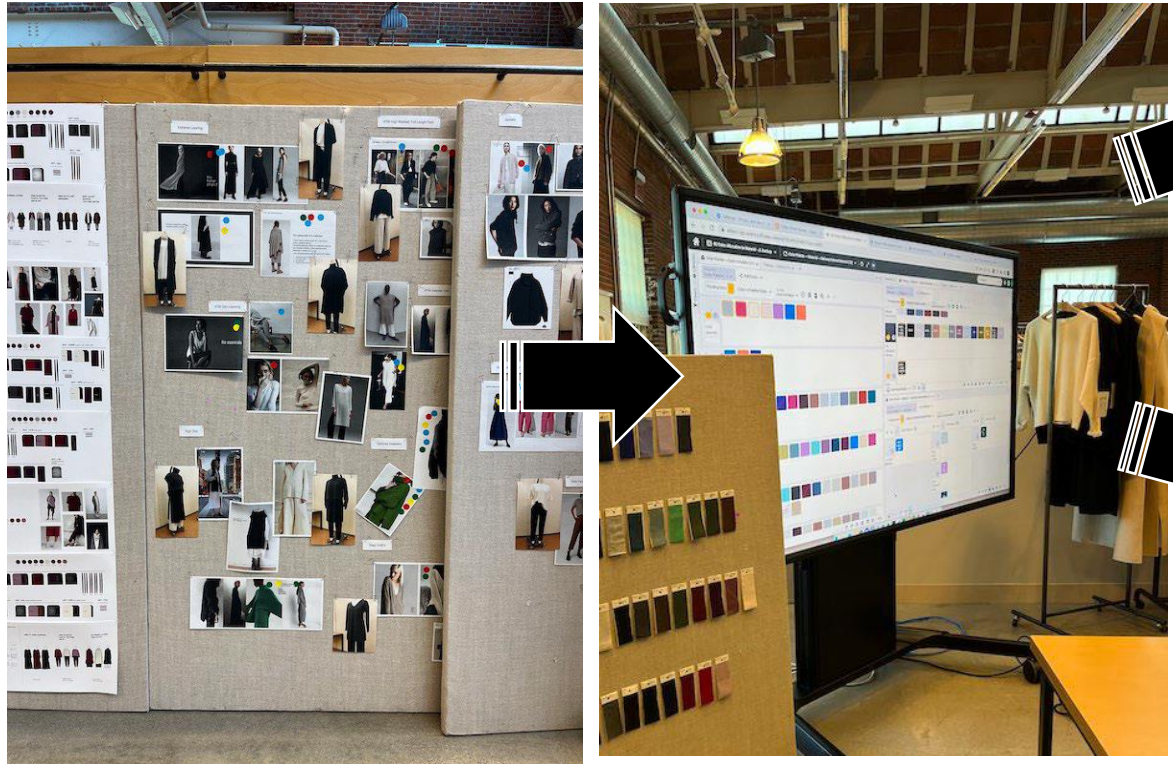
From Ideas,
to Engineers,
to Consumers...

And back !



Virtual Twins of: Collections

Centric Visual Innovation Platform (VIP)



Virtual Twins to react to Market Changes

Centric PLM acquisition of StyleSage for lightning-fast decisions regarding assortments and prices

- ✓ Cloud-based market intelligence
- ✓ AI-powered competitive assortment benchmarking, price and product trend insights.
- ✓ Unique product matching capabilities
- ✓ Best in class accuracy

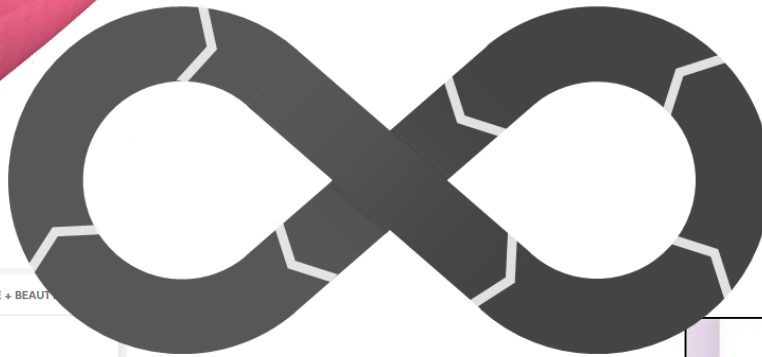
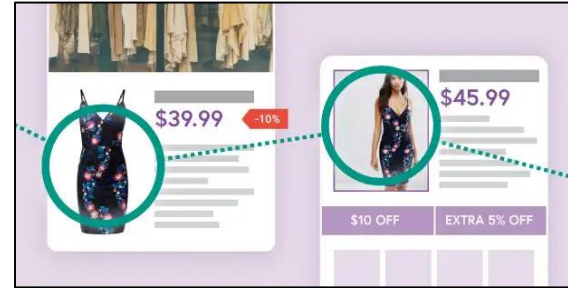


Image-Based Recognition



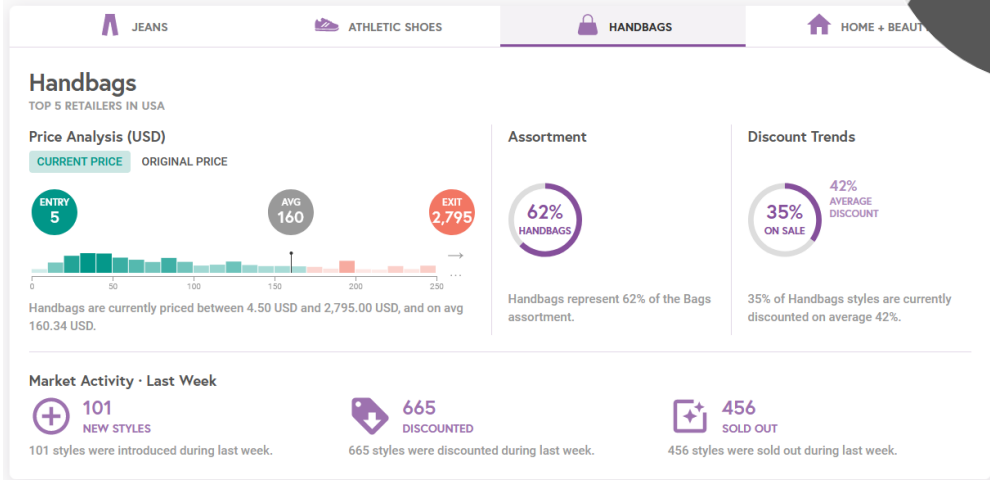
High Quality Crawling



Attribute Tagging



Analytics Platform



20M+ Virtual Twins of their Homes ! (+ 3.5M Kitchens ↗)

Discover decor ideas and inspiration for your home

Get inspired by our community images to create your own design [Show more](#)

All rooms

Living Room

Kitchen

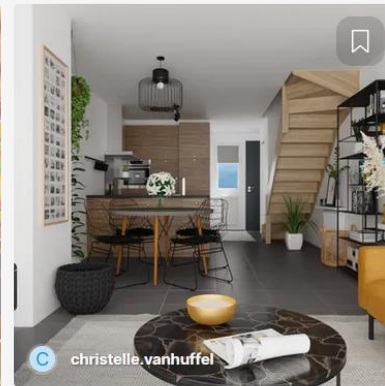
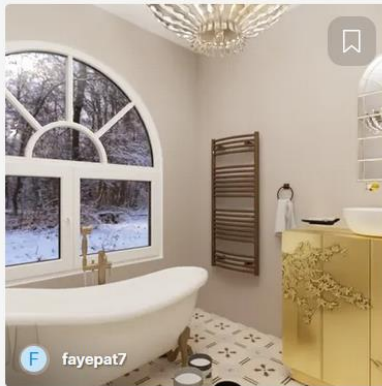
Bedroom

Dining room

Bathroom

Office

...



Audience & Data Sets !

Result : Strong and Sustainable Growth in Consumer-driven industries

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Home & Lifestyle



Consumer Packaged Goods - Retail

■ 3DEXPERIENCE

■ Centric PLM

