SAP Innovation Awards 2025

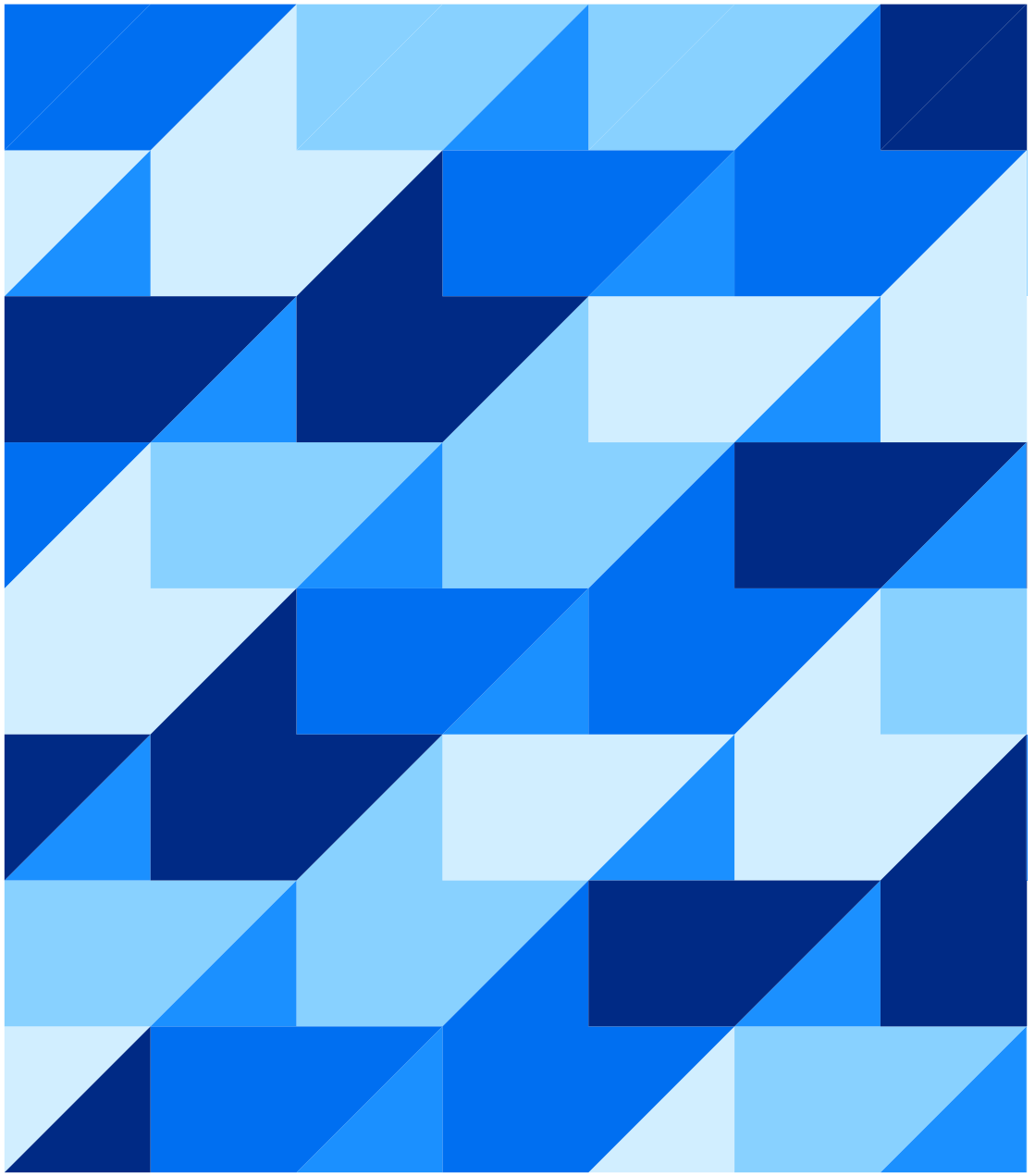
Entry Pitch Deck

Unlocking growth opportunity for Hershey supply chain through data science-driven network portfolio optimization

The Hershey Company

Consumer Products

PUBLIC



Company information

COMPANY NAME:

The Hershey Company

HEADQUARTERS:

19 E. Chocolate Avenue, Hershey, Pennsylvania, U.S.

INDUSTRY:

Consumer Products

WEBSITE:

https://www.thehersheycompany.com/

NUMBER OF EMPLOYEES:

Approximately 17000 Full time employees

Hershey Company, American manufacturer of food products, chiefly chocolate and sugar-based confections, founded on February 8, 1894.

- **Vision: To be an innovative snacking powerhouse and anchored in four interconnected strategies:**
  - Driving growth by capturing more snacking occasions
  - Profitable and sustainable international expansion
  - Operating with best-in-class capabilities and partnerships
  - Investing in people and communities

- **Hershey's Centered Innovation Approach**
  Hershey leverages advanced consumer intelligence, retail insights, and trends to enhance shopper experiences and support retailer growth. Key focuses include adapting to digital commerce, wellness snacking, and the rising popularity of foodservice in convenience stores, driving higher margins and larger transactions.

- **Climate and Sustainability Commitments**
  Hershey aims to reduce Scope **1 and 2 emissions by 50% and Scope 3 by 25% by 2030**, aligning with the Paris Agreement. Key efforts include investing in renewable energy, advancing sustainable packaging, ending deforestation, protecting biodiversity, and improving water stewardship. These initiatives reflect Hershey’s dedication to creating a sustainable future.

Cost of Complexity

The Hershey Company

CHALLENGE:

- We have a disconnected process to manage our production portfolios and scheduling decisions
- Today's decision-making process is siloed and time consuming (8-10 weeks)
- Limited scalability; too many networks to assess (20+ production networks)
- Current manual solution only works with simpler networks; missing opportunities from complex networks

SOLUTION:

- Scalable mathematical optimization framework to quantitatively assess the feasibility and financial impact of a multitude of production decisions across many manufacturing networks
- A comprehensive data module to standardize the attribution process of any network, centralize all network data, and allow for ML-driven imputation with stakeholder validation
- UI application hosted on the SAP Business Technology (SAP BTP) platform through the SAP BTP, Kyma runtime for machine learning deployments enabled through SAP Fiori, SAP Business Application Studio, and SAP Analytics Cloud

OUTCOME:

- An end-to-end process where business users can change how they work, unify goals across networks, and make data-driven decisions faster
- A connected, fast, and scalable solution to solve our manufacturing problems across many networks
- Unlocking trapped capabilities in complex networks faster, through quantitative trade-offs and discovery of additional sales growth opportunities.
- Output reports for scenario analysis, supply plan, production schedule and comparisons

*Network: A set of manufacturing lines to produce a set of products

75%

Reduction in data analysis efforts with increased efficiency

6

Manufacturing networks modeled globally resulting into optimized product mix and increased network utilization

5

SAP data sources are integrated ,solution to be scalable for additional data sources as needed

SAP Innovation Awards 2025

The company uses advanced analytics and AI to help find hidden capacity. We did that with our KitKat production network of six production lines, and as a result, found opportunities in schedule and item changes that found $35 million of capacity just sitting there that didn't require a whole lot of investment to get after

Will Bonifant
VP Supply Chain Strategy & Manufacturing

HERSHEY
THE HERSHEY COMPANY

Participating partner information

Incture has been delivering technology-enabled business innovation to SAP customers since 2006. Its intelligent digital applications and systems are delivering integrated hyper automation for SAP customers. These digital applications integrate people, processes, data, systems to make work easy, and deliver a shift in business performance and people experiences. With offices in the US, Canada, India, Europe, Middle East, Southeast Asia and Australia, Incture has been instrumental in technology-enabled innovation for its customers across the world.
Visit: www.incture.com.

As the Innovation partner to Hershey, Incture is helping the different business departments leverage the full potential of SAP Business Technology Platform, to drive critical and transformative business outcomes. With a digital innovation journey centered around customer excellence, Incture has been working hand in hand with Hershey team to continuously identify optimization use cases with respect to product mix, margin, demand etc and realize them in an agile efficient manner, adding more value to scale the business.

COMPANY NAME:

Incture LLC.

> Incture went above and beyond, not only delivering on scope but proactively suggesting innovate components like a data quality control module. They proposed additional SAP BTP capabilities that elevated our product and consistently impressed us with their deep technical expertise – turning every challenge into an opportunity for growth.
>
> Xiao Yang
> Director of Data Science

Incture®

Challenges

GLOBAL CHALLENGES

In the world of fast changing tastebuds, consumer product industry is always on hunch of creating new flavors for the market to maintain their market share.

Once identified, the manufacturing plan needs to be published based on multiple parameters such as existing capacity, forecasted demand data, material cost and its shelf life etc.

Hence, the challenge of finding an optimum way to meet or plan the manufacturing needs of the organization, which leads to CAPEX planning as well, industry needs a tool to take data-driven informed decisions under various scenarios with multiple permutations & combinations resulting in better asset utilization, reduced OPEX cost and higher top and bottom line of the company.

BUSINESS CHALLENGES

- A connected process to manage production portfolios and scheduling decisions is needed in a scalable tool.
- Reacting to a changing market and global supply chain means decisions must be made faster and with scientific rigor.
- Hershey's manufacturing networks cover many brands, are agile to the needs of customers, and require a scalable solution to assess decision tradeoffs across all its networks.
- Some existing solutions are specific to small product portfolios and don't have the resolution needed for optimizing objectives like margin at the item-line level.

Objectives

PROJECT OBJECTIVES

Portfolio optimization is an initiative to advance the abilities of commercial, supply, and demand planners with optimization-driven models to solve production schedules from demand scenarios.

Hershey's CMG production networks have shifting priorities and business teams need to answer questions not currently answerable today. The tool will be used to implement our optimization models for futuristic scenario analyses and validation of existing key supply chain decisions.

WHY SAP

SAP has been a key part of Hershey's technology stack for more than 25 years. SAP BTP provides the holistic solution to our end-to-end use case, where-in we need to ingest data from SAP S/4HANA Cloud Private Edition and SAP Business Warehouse systems and build different versions of scenarios for our product networks. We leveraged SAP Cloud Application Programming Model framework using SAP HANA Cloud, SAPUI5 and SAP Fiori which then integrates with a python-based model inputs build over SAP BTP, Kyma runtime that gets solved by a third-party optimizer.

Given end to end solution with SAP BTP capabilities gave us more robust and future proof solution

Project or use case

OVERALL USE CASE

Hershey is known for producing a wide range of products across many brands. Current expansion into salty snacks further challenges the global supply chain to improve portfolio decision where demand, supply, and commercial planning teams have different priorities and a multitude of manufacturing capabilities. We have built an environment that allows the business to organize and experiment quickly with a large amount of data for a manufacturing supply scenario of a product portfolio and quantitatively assess trade-offs of the production and sales of the solved schedules. The tool is designed to also build future scenarios around innovation items and lines to assess new opportunities. This allows our business to identify portfolio tradeoffs that are otherwise difficult or impossible to measure. Mathematical optimizers are used to solve demand and production scenarios and generate hourly production schedules at the item, line-level. There are many indicators for decision making involved in the product portfolio planning.

USE OF ARTIFICIAL INTELLIGENCE IN THE PROJECT

We used operations research models for our mathematical optimizers, machine learning for data quality management, and automation for our tool. We intend to build towards an automated insights engine generated from demand and production scenarios with minimal manual intervention.

Benefits and outcomes 1 of 2

BUSINESS OR SOCIAL

Each network has specific areas within the value chain that causes complexity. This complexity is commonly driven by changeovers, productivity, waste, handling and labor, and utilization. The cost of complexity is incurred in different areas across the value chain in different networks. Through deep partnerships with supply chain and commercial functions, this project aims to support supply chain priorities by maintaining balanced network portfolios.

A significant benefit to the business is the speed at which data-driven decisions can now be made. We have gained the ability to map networks, run multiple scenarios, analyze data, and provide optimal solutions in real-time. For example, the tool identified that removing an inefficient product with $9M in annual sales would enable $13M in incremental sales of a key innovation item. This change would increase network utilization by 3% and optimize the portfolio to deliver an additional $17M in total portfolio revenue.

IT*

The entire solution was built on SAP BTP platform to enable robust and native SAP capabilities. This allowed us to:

- Make decisions and quickly deploy across Hershey's manufacturing planning team
- Utilizing machine learning modeling and optimization modeling in a common extensible language, Python.
- Standardize and organize manufacturing data – opens doors to more analytics in future
- Take advantage of future partnerships (e.g., Databricks) to unify modern data science capabilities with technologies like SAP

Benefits and outcomes 2 of 2

PEOPLE RELATED: PERSONAL PERSPECTIVE

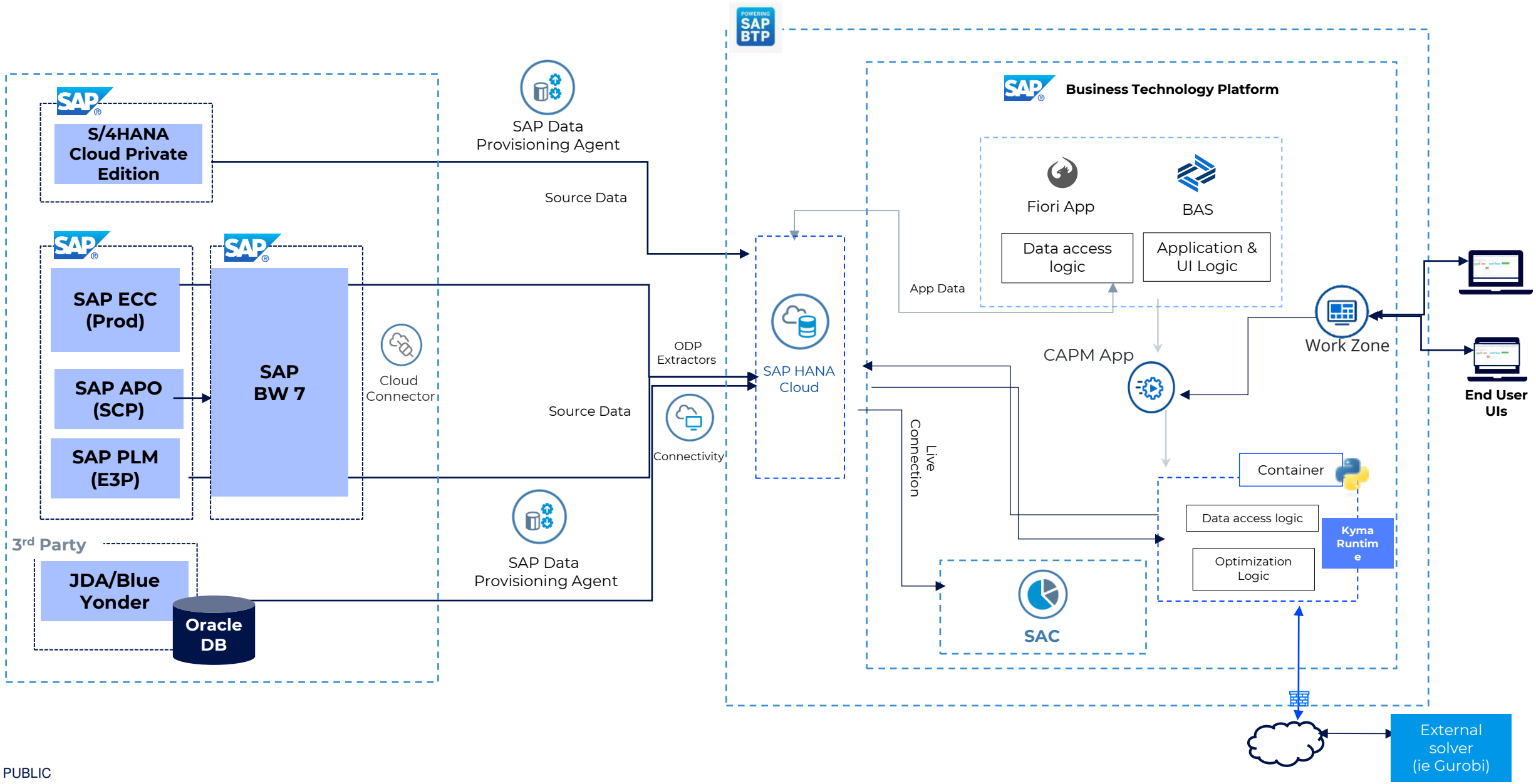
By leveraging collaboration between supply chain and data science, we have simplified complex challenges and driven business progress through the establishment of a standardized data structure. This initiative has led to the development of solutions that enhance manufacturing capacity and validate capital investments. The tool has changed our approach, fostering collaboration across the entire supply chain.

The standard data structure enables alignment across different business functions and addresses key trade-offs. It ensures that everyone has a real-time, shared view of demand and production scenarios. For instance, we can bring together supply, demand, and commercial planners in the same room, define the problem within 30 minutes, and build a model to identify trade-offs and make informed decisions.

> **This integrated data approach enables accelerated decision making with real-time data. The teams can quickly identify trade-offs, make informed decisions, and quickly react to changing demands while minimizing production complexity.**

Anna Maissen
Sr. Manager Supply Chain

Architecture



Deployment details 1 of 3

SAP TECHNOLOGIES USED

	SAP PRODUCT	DEPLOYMENT STATUS LIVE/POC	SAP AI SCENARIO (if applicable)	CONTRIBUTION TO PROJECT
1	SAP S/4HANA Cloud Private Edition	LIVE	-	Source for master data sets
2	SAP Business Warehouse	LIVE	-	Source for master data sets
3	SAP ERP Central Component	LIVE	-	Source for master data sets
4	SAP HANA Cloud	LIVE	-	SAP HANA Cloud containers for storing and processing Application data
5	SAPUI5	LIVE	-	Application creation for cost of complexity use case
6	SAP Launchpad	LIVE	-	Application launchpad tiles creation
7	SAP BTP, Kyma runtime; SAP BTP, Cloud Foundry runtime	LIVE	Optimization model and ML Models using Kyma run time	Runtime for cloud application and Python logic created for optimizer model creation. Also, for running ML models
8	SAP Business Application Studio	LIVE	-	Application platform for end-to-end application building

DEPLOYMENT STATUS:

LIVE

DEPLOYMENT COUNTRY:

USA

DATE:

15th January 2024

NUMBER OF END USERS:

Entire supply/demand/commercial departments benefit, 20 Plus users are currently using it , more users will be onboarded as we rollout the application to international users. Though the users are limited, business impact is huge in Positive terms.

TRANSACTION VOLUME:

~16000 + Materials

~26+ Product Networks

~76,000 + Material demand data

Deployment details 2 of 3

The following SAP Business Technology Platform (SAP BTP) solutions are part of the project:

	TECHNOLOGY	SAP BTP SOLUTION	CONTRIBUTION TO PROJECT
1	Application Development	SAPUI5 and SAP Fiori Launchpad	Create UI application and utilize launchpad for end users
2	Data and Analytics	Currently Ploty library-based visualization within SAP HANA Cloud	Provide scenario output analysis charts and visuals
3	Integration	SAP HANA service smart data integration for SAP BTP	Ingest source data via SDI into SAP HANA
4	Artificial Intelligence, ML	Python based models on SAP BTP, Kyma runtime	Create Python based mode input for third part optimization engine and ML models like KNN for price prediction

*For partners only

***LICENSED THROUGH THE SAP BUILD/TECH ADOPTION PROGRAM:**

***LISTED ON SAP STORE:**

***MONETIZED (SOLD TO YOUR CUSTOMERS):**

***CO-INNOVATION WITH SAP:**

***NUMBER OF CUSTOMERS USING THE SOLUTION/APP:**

Deployment details 3 of 3

The following offerings from SAP services or application packages were utilized during the implementation or deployment phase.

	SAP SERVICE OR APPLICATION PACKAGE	CONTRIBUTION TO THE PROJECT
1		
2		
3		
4		
5		

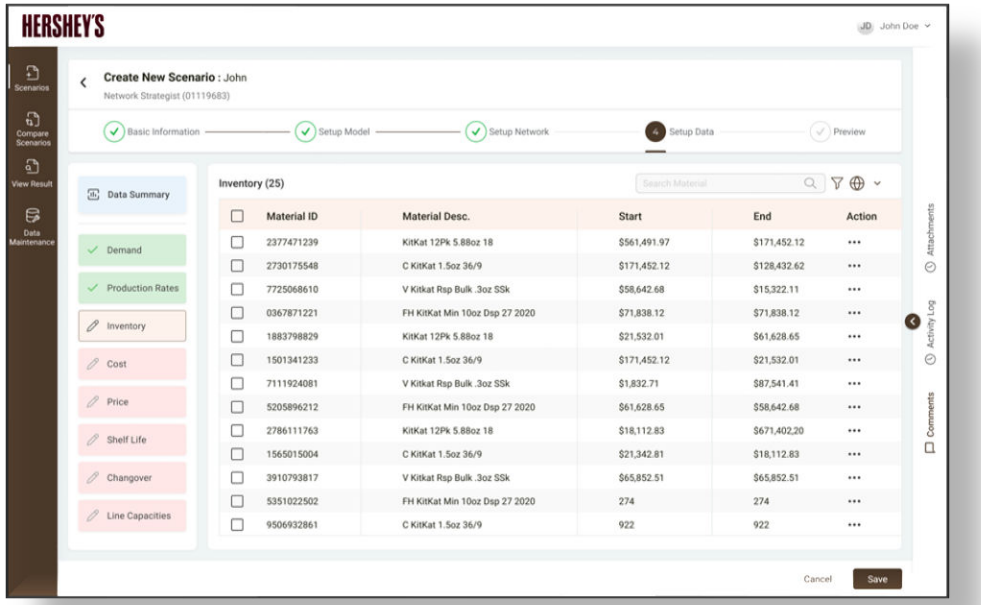
Other Packages

◯ SAP DISCOVERY CENTER MISSION:

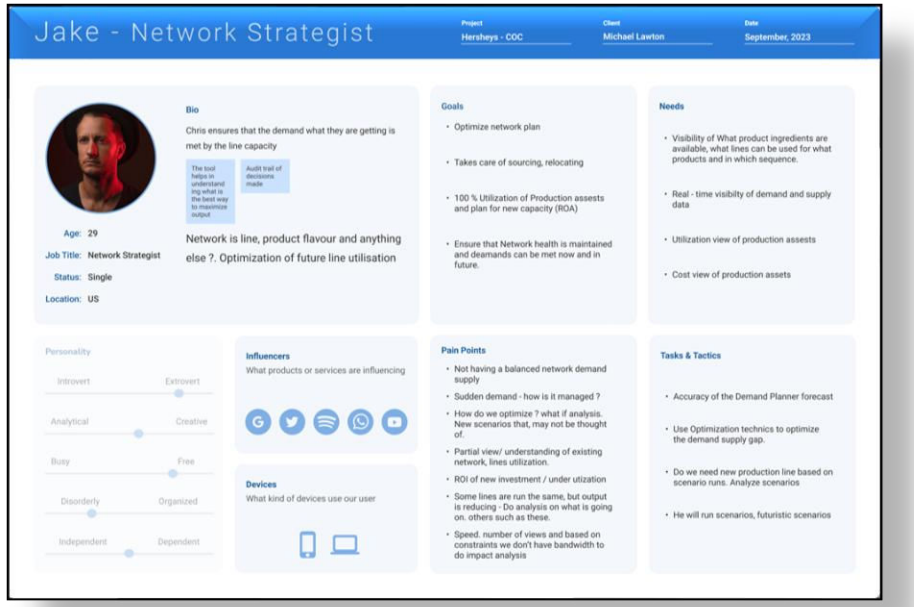
Additional information

AppHaus Design workshop

- We are AppHaus partner since 2019.
- Human centered design approach was followed to elicit requirement from business team.
- Process we followed:
  - Defined Personas who would be end users of application.
  - Conducted research through user interviews, surveys and customer journey mapping to understand the process and pain points.
  - Synthesized findings to categorize and prioritize pain points based on user impact.
  - Designed intuitive solutions focused on improving usability, accessibility, and efficiency.
  - Iterated with the user for UX with prototypes.



Application Screen



Network Strategist Persona