Labor productivity and capacity utilization analysis

Automotive accessories manufacturer

Partnered with the client to track Labor productivity and capacity utilization for the product lines, across plants, and provide visibility into reason for change in trend of units produced and labor productivity with the help of an automated Power BI dashboard

Automotive accessories manufacturer needs reporting for labor productivity and utilization

Picture this…

You're looking to track labor productivity and capacity utilization at a product-line level, across plants and have visibility into units produced and labor productivity trends with the help of an automated Power BI dashboard. Currently, the labor productivity reports are not centralized and the individual reports shared by the plant teams has discrepancies.

You turn to Accordion.

We partner with your team to track labor productivity and capacity utilization for the product lines, across plants, and provide visibility into reason for change in trend of units produced and labor productivity with the help of an automated Power BI dashboard, including:

1) Building automated data pipelines to ingest, integrate, and transform the production data from various ERP systems (Microsoft Dynamics GP, Infor Visual, Traverse, Sage 500, etc.) and labor data from workforce management (UKG) system into a central data repository and develop an automated Power BI dashboard to centrally track the production data, labor productivity, and capacity utilization metrics to effectively manage operations

2) Analyzing the factors driving the labor productivity trends with a deep-dive into impact of changes in product mix vs. labor hours spent on production at a product line level

3) Creating scenario modeling of capacity to optimize performance, labor costs, avoid underutilization and help S&OP team with capacity planning

Your value is enhanced.

- You can better manage the production operations and understand the root cause of fluctuation of productivity metrics to optimize resource allocation, streamline operations, reduce costs, and achieve operational efficiency.

- You have a track on capacity utilization with insights into production capacity at a product line level and related resource allocation. This helped to streamline labor costs by $0.4M per month at the production facilities

KEY RESULT

- Reduced costs by $0.4M per month

VALUE LEVERS PULLED

- BI Reporting
- Labor productivity
- Capacity utilization

Labor productivity & capacity utilization analysis for automotive accessories manufacturer

Situation

- Client lacked a centralized method for monitoring labor productivity and capacity utilization across all their plants. The leadership team excessively depended on individual reports from different plant teams and did not have a company-level view. Moreover, the labor hour information recorded by the plant teams had discrepancies with the hours tracked in the workforce and HR management systems.

- Partnered with the client to track Labor productivity and capacity utilization at a product-line level, across plants and provided visibility into units produced and labor productivity trends with the help of an automated Power BI dashboard
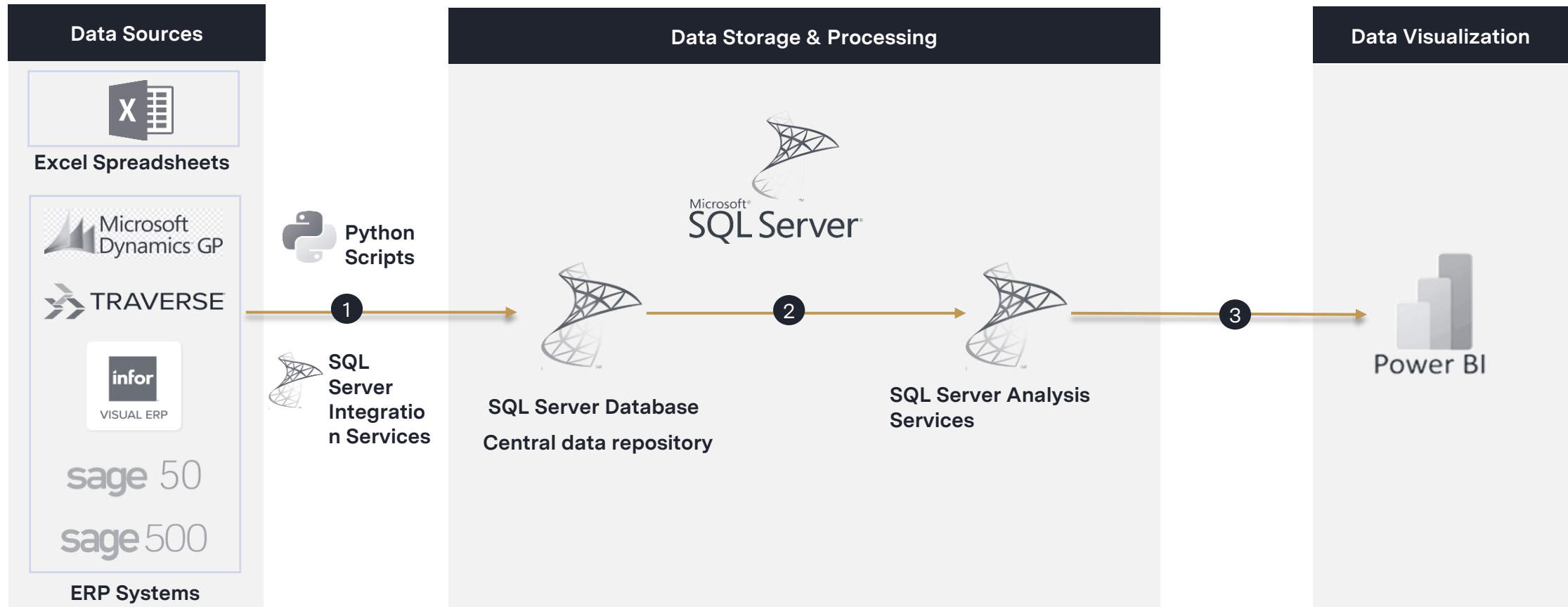
Accordion Value Add

- Built automated data pipelines to ingest, integrate, and transform the production data from various ERP systems (Microsoft Dynamics GP, Infor Visual, Traverse, Sage 500, etc.) and labor data from workforce management (UKG) system into a central data repository and developed an automated Power BI dashboard to centrally track the production data, labor productivity, and capacity utilization metrics to effectively manage operations

- Analyzed the factors driving the labor productivity trends with a deep-dive into impact of changes in product mix vs. labor hours spent on production at a product line level

- Created scenario modeling of capacity to optimize performance, labor costs, avoid underutilization and help S&OP team with capacity planning

Impact

- Enabled the client to better manage the production operations and understand the root cause of fluctuation of productivity metrics to optimize resource allocation, streamline operations, reduce costs, and achieve operational efficiency.

- Tracking capacity utilization provided insights into production capacity at a product line level and related resource allocation. This helped identify an opportunity to streamline labor costs by $0.4M per month at 2 of the production facilities

Data architecture

Data Sources

Excel Spreadsheets

Microsoft Dynamics GP

TRAVERSE

infor VISUAL ERP

sage 50

sage 500

ERP Systems

Python Scripts

SQL Server Integration Services

Data Storage & Processing

Microsoft SQL Server

SQL Server Database
Central data repository

SQL Server Analysis Services

Data Visualization

Power BI

① Collate and ingest data from multiple sources using SQL Server Integration Services (SSIS) and Python script to a central data repository

② Build analytical data models by leveraging Analysis Services (SSAS) to aggregate production data and calculate KPIs

③ Design and implement labor productivity and capacity utilization Power BI dashboards to automate analysis and reporting

Labor productivity dashboard
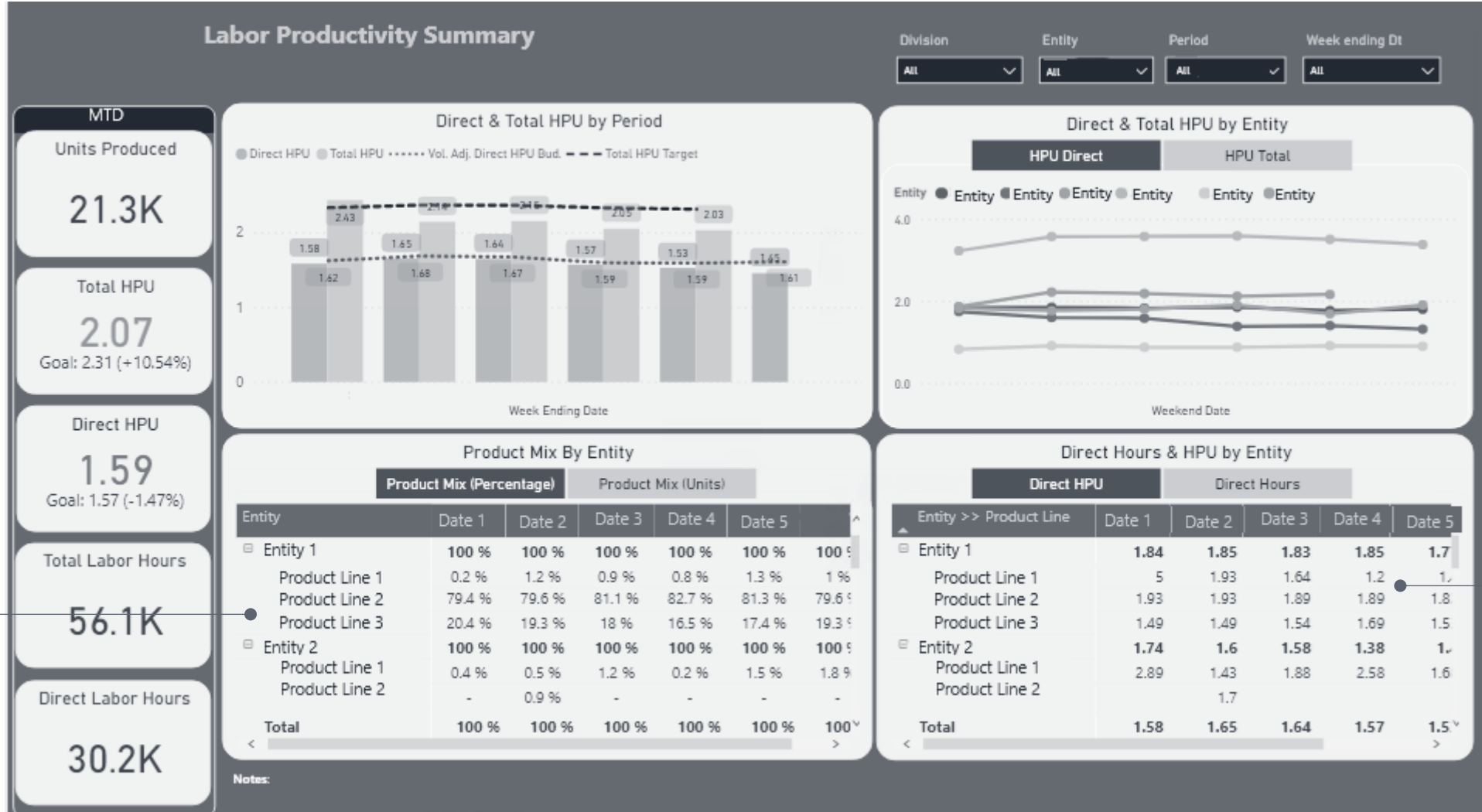
Weekly trend of manufacturing product mix

Trend of manufacturing hours per unit by entity and product lines

*HPU – Labor Hours per units

Capacity utilization dashboard

Capacity Utilization Summary

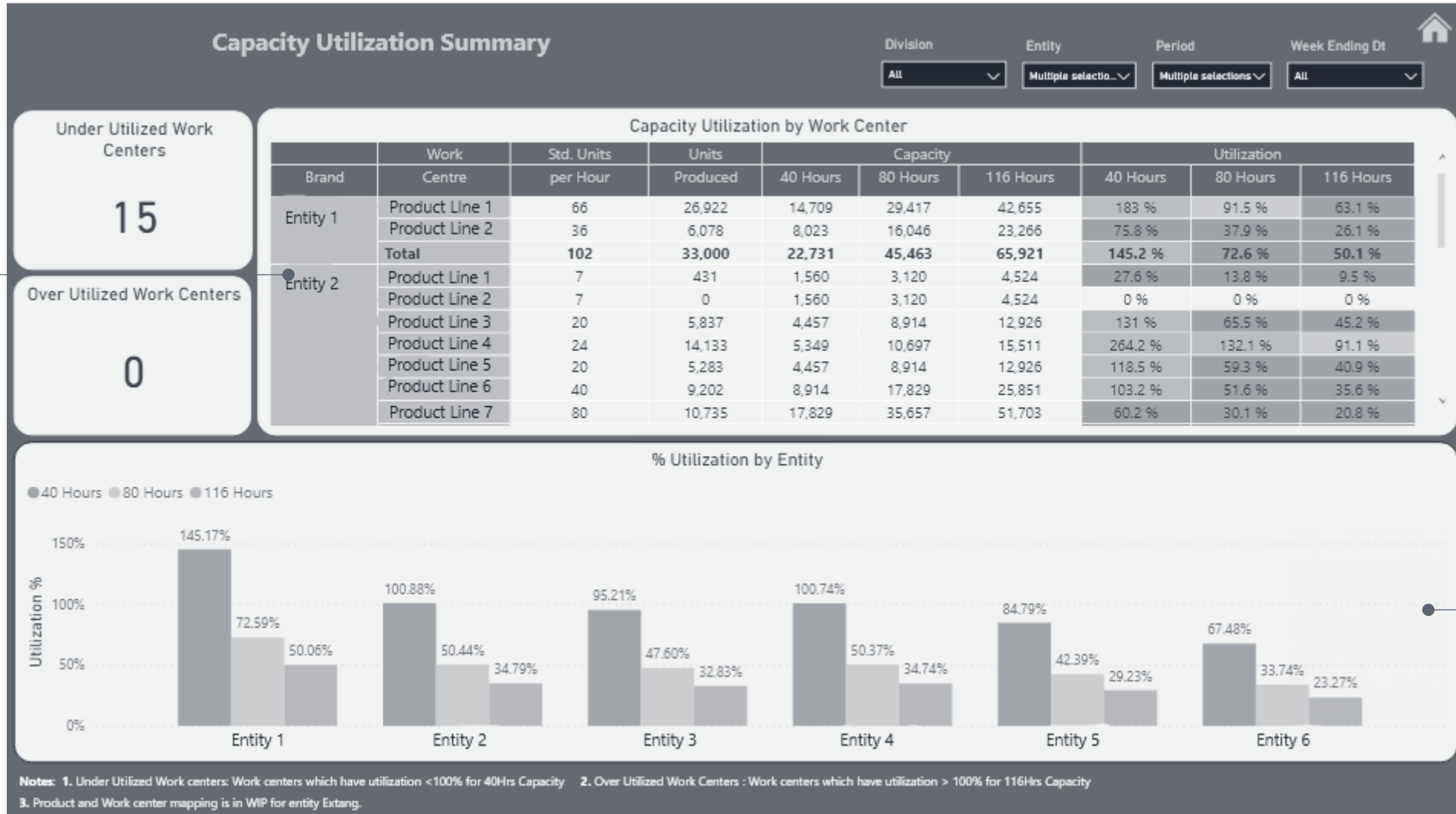| Division	Entity	Period	Week Ending Dt
All ▾	Multiple selectio... ▾	Multiple selections ▾	All ▾

Under Utilized Work Centers

15

Capacity utilization trend by work centres

Over Utilized Work Centers

0

Capacity Utilization by Work Center

Brand	Work Centre	Std. Units per Hour	Units Produced	Capacity 40 Hours	Capacity 80 Hours	Capacity 116 Hours	Utilization 40 Hours	Utilization 80 Hours	Utilization 116 Hours
Entity 1	Product Line 1	66	26,922	14,709	29,417	42,655	183 %	91.5 %	63.1 %
	Product Line 2	36	6,078	8,023	16,046	23,266	75.8 %	37.9 %	26.1 %
	Total	**102**	**33,000**	**22,731**	**45,463**	**65,921**	**145.2 %**	**72.6 %**	**50.1 %**
Entity 2	Product Line 1	7	431	1,560	3,120	4,524	27.6 %	13.8 %	9.5 %
	Product Line 2	7	0	1,560	3,120	4,524	0 %	0 %	0 %
	Product Line 3	20	5,837	4,457	8,914	12,926	131 %	65.5 %	45.2 %
	Product Line 4	24	14,133	5,349	10,697	15,511	264.2 %	132.1 %	91.1 %
	Product Line 5	20	5,283	4,457	8,914	12,926	118.5 %	59.3 %	40.9 %
	Product Line 6	40	9,202	8,914	17,829	25,851	103.2 %	51.6 %	35.6 %
	Product Line 7	80	10,735	17,829	35,657	51,703	60.2 %	30.1 %	20.8 %

% Utilization by Entity

● 40 Hours ● 80 Hours ● 116 Hours

Entity	40 Hours	80 Hours	116 Hours
Entity 1	145.17%	72.59%	50.06%
Entity 2	100.88%	50.44%	34.79%
Entity 3	95.21%	47.60%	32.83%
Entity 4	100.74%	50.37%	34.74%
Entity 5	84.79%	42.39%	29.23%
Entity 6	67.48%	33.74%	23.27%

Capacity utilization by entity

Notes: 1. Under Utilized Work centers: Work centers which have utilization <100% for 40Hrs Capacity   2. Over Utilized Work Centers : Work centers which have utilization > 100% for 116Hrs Capacity
3. Product and Work center mapping is in WIP for entity Extang.