HR METRICS AND ANALYTICS FOR XTREME FURNITURE & CO (FURNITURE INDUSTRY)

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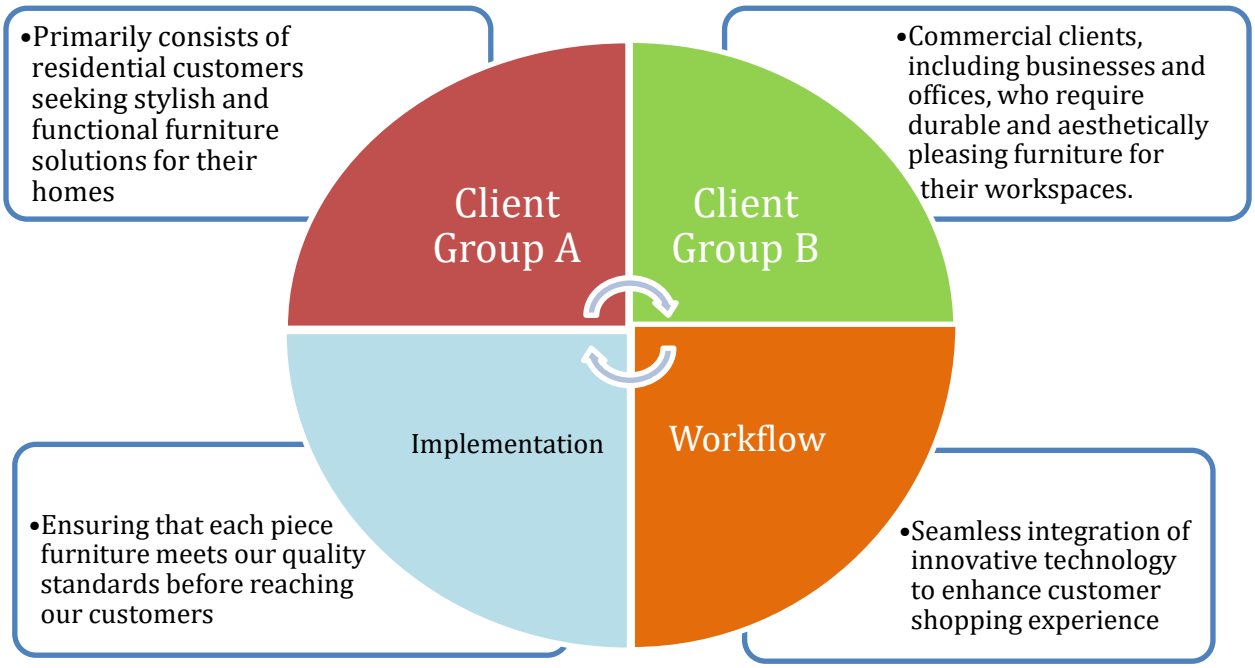
1. Introduction to the Company-Xtreme Furniture & Co

Xtreme Furniture & Co, a well-established name in the furniture industry, has been synonymous with quality and innovation. The company has built a reputation for delivering top-notch furniture solutions that seamlessly blend aesthetics and functionality.



2. PROJECT SUMMARY

1.1. Project Objective

The objective of this project is to outline the findings based on problems and areas of focus in Xtreme Furniture & Co and suggest needed HR improvements and initiatives to use to be carried by Xtreme Furniture & Co in order to achieve its goals.

1.2. Scope of Project

- Findings and Xtreme Furniture & Co strategy map based on given case study
- High level guidelines to carry the following HR improvements and initiatives and suggested metrics to use:
    - Culture
    - Talent Management
    - Motivation of Talent
    - Retention of Employees
    - Recruitment
    - Performance Management
    - Learning and Development
    - Diversity
- Operational analytics
- Predictive analytics

3. FINDINGS AND STRATEGY MAP

FINDINGS

- Innovation and Customer-Centric Approach:

The company has successfully fostered innovation through its brand and services. It has developed internal tools and digital portals, such as an Interactive Design Studio and an Online Product Customization Tool, to provide customers with personalized and interactive experiences. This customer-centric approach highlights the company's dedication to meeting the unique needs and preferences of its clientele.

- Emphasis on Quality and Craftsmanship:

Similar to leading companies in the industry, the company places a strong emphasis on quality and craftsmanship. It takes pride in using premium materials and skilled artisans to craft its furniture pieces. This commitment to quality has contributed to its reputation for reliability and customer satisfaction.

- Effective Onboarding and Niche Expertise:

The company's streamlined onboarding process is an asset, allowing the HR team to efficiently integrate new hires into the company culture. Given the specialized nature of the furniture industry, where design and craftsmanship are paramount, this onboarding process helps new employees acclimate to the unique demands of the business quickly.

- Diversity and Inclusion:

The company recognizes the importance of diversity, both in terms of its workforce and customer base. Similar to industry best practices, it believes that diversity among employees, encompassing gender, background, and perspectives, contributes to a richer and more innovative work environment. Initiatives should be launched to ensure a balanced gender ratio and a culturally diverse workforce.

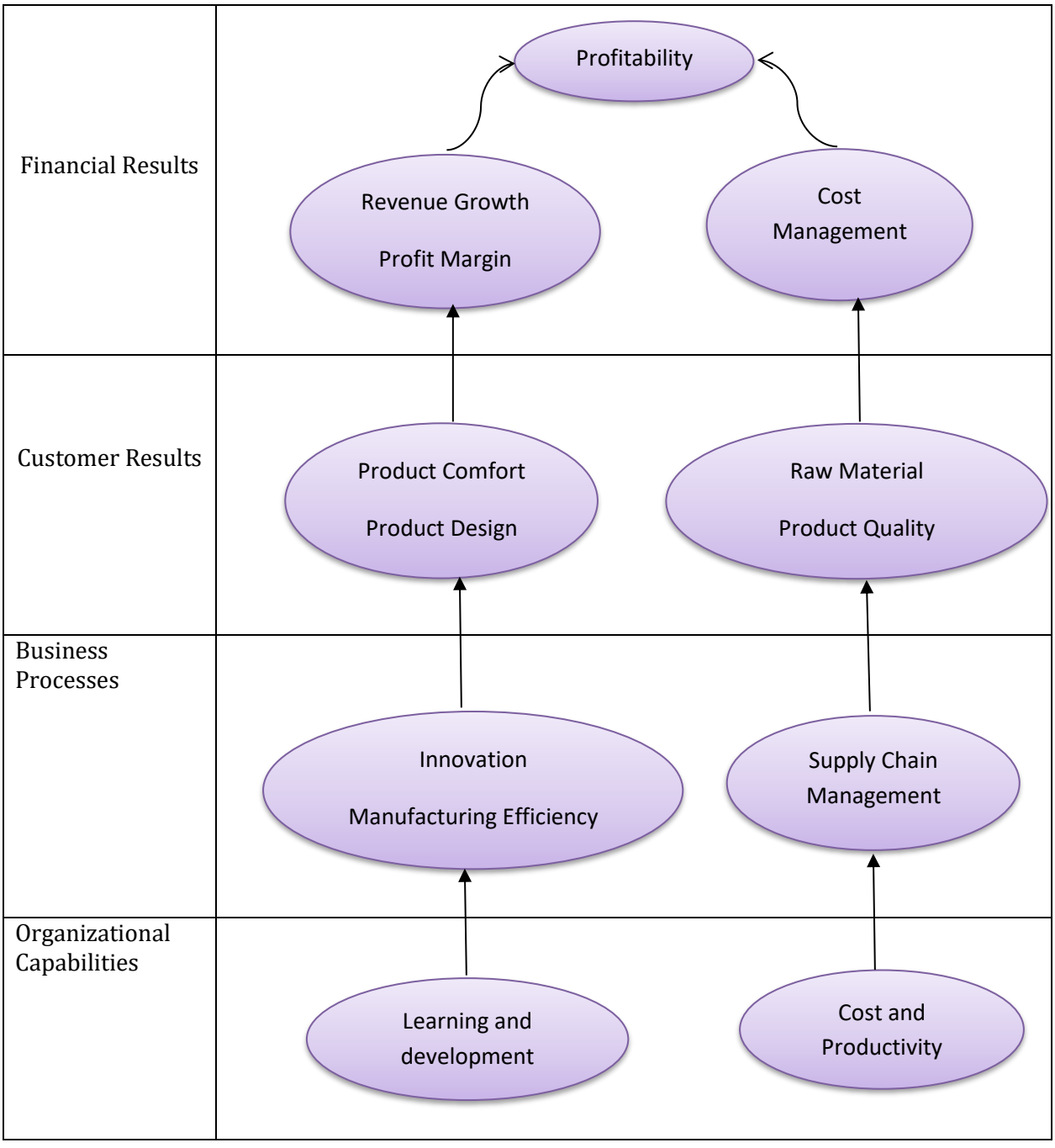
- Investment in Employee Development:

The company invests significantly in employee training and development, particularly in areas related to design, manufacturing, and customer service. However, it is essential to address attrition concerns, especially among recent graduates and postgraduates.

Implementing retention strategies and succession planning is vital to mitigate the risks associated with high turnover rates.

Suggested Strategy Map-The strategy map assumes a strategic objective of having "Providing Best and Innovative Services to Customers and Clients, and Maintaining high Standards of Confidentiality".

Strategy Map



4. HR OBJECTIVES WITH KEY QUANTIFIABLE MEASURES

Xtreme Furniture & Co stands at the forefront of the furniture industry, embodying a legacy of excellence, innovation, and unparalleled craftsmanship. Established over two decades ago, the company has grown to become a renowned name synonymous with top-tier furniture solutions.

4.1 Culture

Xtreme Furniture & Co should focus on shaping its organizational culture by instilling core beliefs, practices, and values that promote a sense of belonging among employees and create a comfortable workplace environment. It is crucial to ensure that employees understand the company's culture elements, including values and ideologies. Cultural change should be a gradual and carefully planned process.

Xtreme Furniture & Co can introduce and track the following Key Culture Metrics:

4.1.1 Employee Engagement or Satisfaction Rating– To analyze engagement/ satisfaction levels of employees in the organization.

HR metrics for Culture

Objective	Business Measure	HR Measure	Target	Initiative
Create a positive and inclusive workplace culture	Employee satisfaction score	Employee engagement score	90%	Launch an employee resource group for underrepresented employees.
Promote a culture of continuous learning and development	Employee turnover rate	Number of employees enrolled in training programs	10%	Offer tuition reimbursement for employees who want to take courses.
Build a high-performing team culture	Teamwork score	Employee survey on collaboration and teamwork	4 out of 5	Implement regular team-building exercises and activities.
Drive customer satisfaction	Customer satisfaction score	Number of customer complaints	95%	Establish a customer service feedback loop to gather and address customer concerns.

4.2 Motivation of Talent

To maintain a strong and stable workforce, Xtreme Furniture & Co should prioritize the motivation and retention of talent. This includes attracting talented individuals seeking long-term stability in the furniture industry. Focusing on talent management will help identify key performers and roles, leading to improved processes in customer support, quality management, and product design, resulting in higher customer and client satisfaction, business growth, and financial efficiency.

Xtreme Furniture & Co can introduce and track the following Talent Management metrics:

4.2.1 Talent Motivation

4.2.1.1 Employee Engagement- To understand the engagement levels of employees.

4.2.1.2 Internal Referrals for Employee- To assess if employees refer external candidates to the organization.

4.2.2 Talent Retention

4.2.2.1 Attrition Rate- To understand trends in employee turnover.

4.2.2.2 Average Years of Stay- To analyze the average tenure of employees.

4.2.2.3 Turnover Rate- To understand the number of employees leaving compared to new joiners.

HR metrics for Talent Management

Objective	Business Measure	HR Measure	Target	Initiative
Increase employee engagement and productivity	Increased customer satisfaction and revenue	Employee engagement score	85%	Conduct regular employee engagement surveys and implement initiatives to improve employee engagement, such as L&D programs, social events, and recognition programs.
Enhance leadership skills and innovation	Increased number of new product ideas generated and launched	Percentage of employees completing leadership development programs	50%	Offer a variety of leadership development programs and encourage employees to collaborate and share ideas.
Reduce employee turnover and training costs	Reduced employee turnover rate	Employee turnover rate	10%	Provide employees with opportunities for growth and development, create a positive work environment, and negotiate better rates with L&D vendors.
Create a diverse and inclusive workplace	Increased employee satisfaction and engagement	Percentage of employees from underrepresented groups in leadership positions	20%	Implement unconscious bias training and provide opportunities for employees from underrepresented groups to develop their leadership skills.
Build a culture of continuous learning and development	Increased employee engagement and productivity	Percentage of employees completing at least one L&D program per year	90%	Implement a mandatory L&D program for all employees and offer a variety of L&D programs to meet the needs of different employees.

4.3 Recruitment and On-boarding

Xtreme Furniture & Co should prioritize assessing the skill sets and motivations of candidates during the recruitment process to reduce attrition within the organization. This includes evaluating alignment with the role, understanding the learning curve, and considering career aspirations before hiring. The company should refine its hiring methods and develop strategies to ensure the selection of the right candidates.

Xtreme Furniture & Co can introduce and track the following Key Recruitment Metrics:

4.3.1 Effective Mode of Hiring- Analyzing all modes of hiring and separation rate in each.

HR metrics for Recruitment

Objective	HR Measure	Target	Initiative
Reduce time to fill open positions	Time to fill	28 days	Implement an applicant tracking system (ATS) to streamline the recruitment process.
Increase the quality of hires	New hire performance reviews	85% of new hires meeting or exceeding expectations	Develop a comprehensive onboarding program that includes training on company culture, values, and systems.
Improve candidate diversity	Percentage of candidates from underrepresented groups interviewed	20%	Partner with diversity-focused recruitment agencies and attend diversity-focused career fairs.
Reduce cost per hire	Cost per hire	5%	Use more cost-effective recruitment sourcing channels, such as social media and employee referrals.

4.4 Performance Management

Xtreme Furniture & Co should establish strategic performance standards for each position, including personal performance goals aligned with company objectives. This approach will help identify high-performing employees, align actions with organizational goals, enhance operational efficiency, and ensure equitable distribution of incentives.

Xtreme Furniture & Co should introduce and track the following Performance Management Metrics:

4.4.1 Average Performance Appraisal Rating- To understand the rating distribution in the organization.

4.4.2- Average Performance Appraisal Rating as per Designation- To understand the rating distribution in the organization as per the band/designation of employee.

HR Metrics for Competency

Objective	Business Measure	HR Measure	Target	Initiative
HCRI	Increase sales year-over-year.	Percentage of employees who achieve their sales goals.	Improve the HCRI to 70%.	Implement a new sales training program.
BARS	Competency level defined by a Behaviorally anchored rating scale	Current competency level of the employee	Increase by 3% year-over-year	Implement regular employee recognition and rewards programs and create a more positive work environment.
Improve warehouse efficiency	Order fulfillment time	Average time to pick and pack an order	Reduce by 10%	Implement a new warehouse management system and train employees on how to use it.
Reduce customer complaints	Customer satisfaction score	Percentage of customers who say they are satisfied with their purchase	Increase by 5%	Improve product quality and customer service.
Increase employee engagement	Employee engagement score	Percentage of employees who say they are engaged in their work	Increase by 2%	Offer more training and development opportunities and create a more positive work environment.

4.5 Learning and Development

Xtreme Furniture & Co should prioritize helping employees reach their personal and professional goals to create a strong talent pool. The company should focus on understanding employees' Learning and Development plans to ensure their long tenure with the organization. HR should collaborate with department managers to plan effective training and workshops based on performance and roles. Learning and development programs should align with core competencies and skills essential to the furniture industry.

Xtreme Furniture & Co can introduce and track the following Key Learning and Development Metrics:

4.5.1 Training Hours per Employee – To measure the time invested by the organization in employee learning and development.

4.5.2 Employee Satisfaction with Training – To assess if employee training requirements were met through training sessions.

HR metrics for Learning and development

Objective	Business Measure	HR Measure	Target	Initiative
Increase employee skills and knowledge	Increased customer satisfaction	Percentage of employees completing L&D programs	90%	Implement a mandatory L&D program for all employees
Improve employee engagement	Increased employee productivity	Employee engagement score	85%	Conduct regular employee engagement surveys and implement initiatives to improve employee engagement
Reduce employee turnover	Reduced employee turnover rate	Employee turnover rate	10%	Offer competitive salaries and benefits, provide employees with opportunities for growth and development, and create a positive work environment
Improve innovation	Increased number of new product ideas generated	Number of new product ideas generated	10% increase	Implement an idea submission process, provide employees with time and resources to work on new ideas, and encourage collaboration and cross-functional communication
Enhance leadership skills	Increased employee productivity and engagement	Percentage of employees participating in leadership development programs	50%	Offer a variety of leadership development programs and provide employees with opportunities to mentor and coach others

4.6 Diversity

Xtreme Furniture & Co should focus on enhancing diversity measures comprehensively. This includes helping employees understand cultural biases and neutralities when interacting with clients globally. Within the organization, measures should be put in place during the recruitment process to achieve a balanced gender ratio and other aspects of diversity.

Xtreme Furniture & Co can introduce and track the following Diversity Metrics:

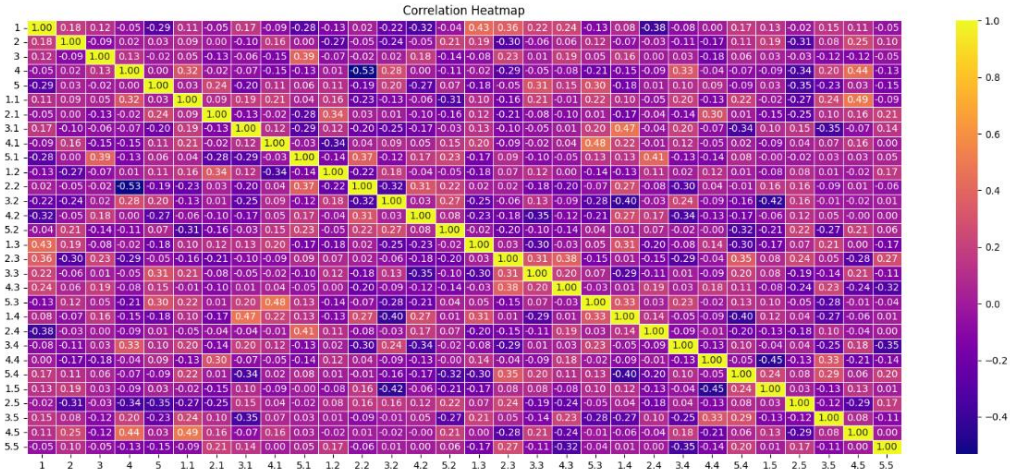
4.6.1 Diversity Percentage– To measure the representation of existing employees in various categories.

4.6.2 Diversity Hire Ratio– To evaluate the ratio of newcomers who fall into pre-defined diversity categories.

5. Operational Analytics

5.1 Culture Metrics

Analysis:

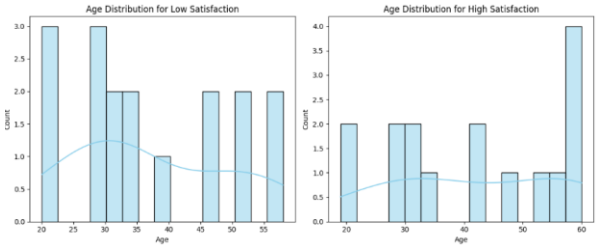


	Working Conditions	Relationship with Colleagues	Job Satisfaction
0	10	16	12
1	7	13	12
2	13	9	14
3	10	6	12
4	11	11	14
5	16	14	14
6	12	11	9
7	9	8	14
8	13	11	15
9	13	8	13

	Companys Policies	Work Life Balance	Support by top management	Score
0	10	9	13	70
1	11	13	12	68
2	11	11	13	71
3	12	12	16	68
4	16	16	11	79
5	9	10	14	77
6	10	14	14	70
7	12	8	13	64
8	12	13	9	73
9	13	5	11	63

	Satisfaction
0	Low
1	Low
2	Low
3	Low
4	High
5	High
6	Low
7	Low
8	High
9	Low

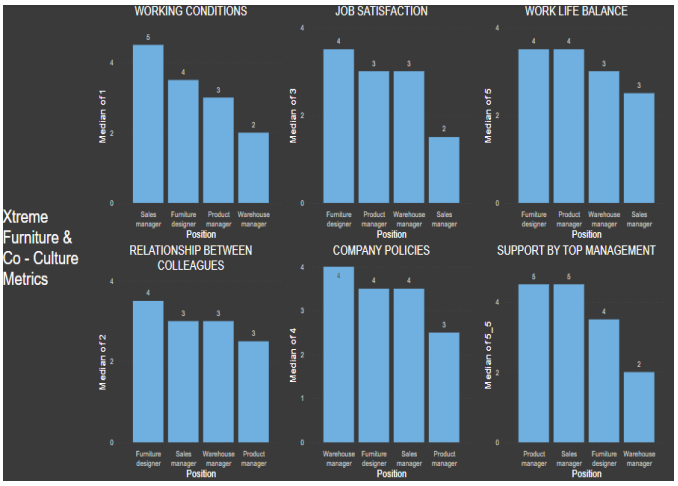
```
Satisfaction
Low     17
High    16
Name: count, dtype: int64
```

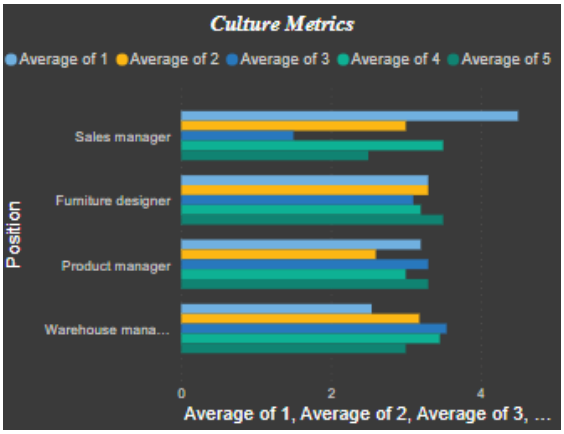


- Employees with higher overall scores in these areas tend to report higher job satisfaction.

- Further analysis and employee feedback may be needed to make more specific recommendations for improving job satisfaction.

Dashboard:





- There is a substantial difference in compensation costs across various production levels.
- A small number of units contributed significantly to the overall compensation costs, indicating potential areas for cost optimization or further investigation into factors driving these variations in labor expenses.

Annexure:

	Position	Experience	Email	Contact	1	2	3	4	5	1	2	3	4	5	1	2	3	4
2	Warehouse manager	1	Alex@gmail.com	9519871085	5	4	2	1	2	3	5	5	2	4	1	5	4	1
3	Product manager	15	Antony@gmail.com	2922055503	3	5	3	2	3	2	5	2	2	4	4	4	3	3
4	Furniture designer	7	Benjamin@gmail.com	9310961311	2	3	3	5	3	2	5	3	5	3	3	3	3	3
5	Product manager	16	chris@gmail.com	5162313059	5	2	5	5	4	2	3	4	5	2	3	2	2	1
6	Warehouse manager	4	Carl@gmail.com	2759031446	2	3	5	2	1	2	3	2	1	4	1	5	5	1
7	Product manager	13	Canem@gmail.com	5501782109	4	1	4	5	2	5	4	5	1	1	2	3	3	4
8	Product manager	17	Derek@gmail.com	3041896290	3	3	2	5	2	5	1	1	1	2	4	1	3	2
9	Product manager	17	Enbaraj@gmail.com	9526341018	3	1	3	3	1	1	2	5	3	3	5	5	2	2
10	Warehouse manager	2	Ester@gmail.com	2146305998	1	1	3	5	3	2	2	2	4	5	3	1	5	1
11	Product manager	17	Ethan@gmail.com	4488827433	3	5	5	2	2	1	1	5	5	2	3	3	5	5
12	Furniture designer	7	Gabriel@gmail.com	9713237514	4	4	4	4	2	2	3	4	3	2	1	3	3	5
13	Warehouse manager	5	Henry@gmail.com	3044775681	3	2	2	2	2	2	1	4	4	4	5	3	4	1
14	Furniture designer	11	James @gmail.com	9193790193	4	3	3	3	1	1	2	1	5	3	2	1	5	3
15	Furniture designer	11	John@gmail.com	2949132783	2	2	2	2	2	4	1	4	3	3	2	2	5	5
16	Sales manager	18	Joseph @gmail.com	3579848719	5	3	4	3	5	2	1	2	1	5	1	1	5	4
17	Warehouse manager	4	Joshua@gmail.com	5644224978	3	4	5	1	4	4	3	1	1	3	2	4	2	3
18	Warehouse manager	2	Matthew@gmail.com	9858524260	4	3	2	2	2	1	4	2	1	5	4	3	5	4
19	Product manager	17	Michael@gmail.com	1140503805	3	4	1	1	4	2	3	5	4	2	4	1	3	1
20	Furniture designer	11	Nicholas@gmail.com	2815966553	1	2	2	2	3	3	4	1	5	4	1	2	1	3
21	Warehouse manager	2	Noah@gmail.com	2934745085	3	2	5	2	3	2	4	4	4	1	1	4	3	2
22	Warehouse manager	5	Oliver @gmail.com	9856150073	4	2	1	4	1	3	3	5	3	1	4	2	3	2
23	Product manager	16	Owen@gmail.com	9236687921	1	5	3	1	5	1	3	5	5	5	4	2	3	3
24	Furniture designer	10	Samuel@gmail.com	9979249835	1	3	3	3	2	1	2	5	1	2	3	1	4	2
25	Furniture designer	7	Sebastian@gmail.com	8886990059	2	3	1	4	5	5	1	5	4	3	3	5	1	1

Culture | HCRI | BARS AND HCRI | Cost & Prod | Recruitment | Train | Perform | Talent

Code:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from scipy.cluster import hierarchy
from tabulate import tabulate
from sklearn.preprocessing import StandardScaler
df= pd.read_excel("D:\CIT\SEM 5\Human Resources System Developement Lab\EX 4.xlsx")
df.head(6)
```

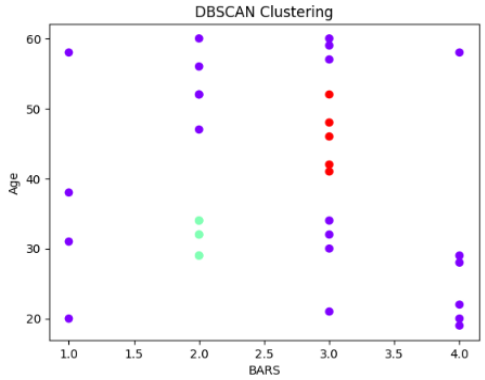
```
data = df.drop(['Name', 'Age', 'Experience', 'Email', 'Contact'], axis=1)
data.dtypes
data.isnull().sum()
cor = data.corr()
cor
import seaborn as sns
import matplotlib.pyplot as plt
plt.figure(figsize=(20, 8))
sns.heatmap(cor, annot=True, cmap='plasma', fmt=".2f", linewidths=.5)
plt.title("Correlation Heatmap")
plt.show()
df1=df.iloc[:,5:]
print(df1.head())
from sklearn.preprocessing import StandardScaler
fnames=['Working Conditions','Relationship with Colleagues','Job Satisfaction','Companys Policies','Work
Life Balance','Support by top management ']
f_dict=dict()
for i in range(0,6):
   f_dict[fnames[i]]=df1.iloc[:,4*i+1:4*i+5].sum(axis=1)
fac_df=pd.DataFrame(f_dict)
print(fac_df.head())
fac_df["Score"] = fac_df.iloc[:, 0:6].sum(axis=1)
mean = int(fac_df["Score"].mean())  # Corrected this line
fac_df.loc[fac_df['Score'] >= mean, 'Satisfaction'] = 'High'
fac_df.loc[fac_df['Score'] < mean, 'Satisfaction'] = 'Low'
print(fac_df.head(10))
count = fac_df["Satisfaction"].value_counts()
print(count)
linkage=hierarchy.linkage(cor,method='ward')
dendo=hierarchy.dendrogram(linkage,labels=cor.columns,orientation='top')
plt.xticks(rotation=90)
plt.title("Dendrogram of Correlation Matrix")
plt.show()
age_stats = fac_df1.groupby('Satisfaction')['Age'].agg(['mean', 'std'])
print("\nAge Statistics for High and Low Satisfaction Groups:")
print(age_stats)
import seaborn as sb
fig, axes = plt.subplots(nrows=1, ncols=2, figsize=(12, 5))

for i, satisfaction_group in enumerate(fac_df['Satisfaction'].unique()):
   data = fac_df1[fac_df1['Satisfaction'] == satisfaction_group]['Age']
   sb.histplot(data, bins=15, kde=True, ax=axes[i], color='skyblue')
   axes[i].set_title(f'Age Distribution for {satisfaction_group} Satisfaction')
   axes[i].set_xlabel('Age')
plt.tight_layout()
plt.show()
```

5.2 Competency Metrics

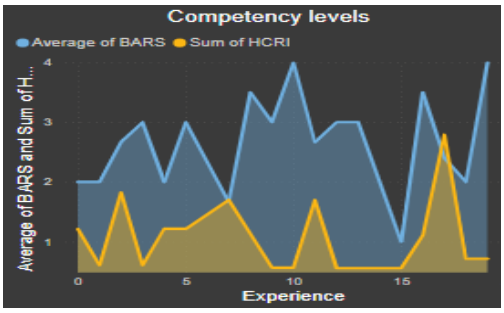
Analysis:

	BARS	HCRI
BARS	1.000000	0.041303
HCRI	0.041303	1.000000



The correlation analysis reveals a weak positive correlation (0.041) between BARS (Behaviorally Anchored Rating Scale) and HCRI (Human Capital Return on Investment), suggesting a limited relationship between these two variables.

Dashboard:



It points out a significant divergence between the "BARS" and the "HCRI" at an experience level of 10

Annexure:

	Name	Age	Position	Experience	Email	Contact	BARS	HCRI
2	Alex	47	Warehouse manager	1	Alex@gmail.com	5236819591	2	60.8%
3	Antony	38	Product manager	15	Antony@gmail.com	2056232573	1	55.8%
4	Benjamin	29	Furniture designer	7	Benjamin@gmail.com	7207244322	2	56.7%
5	chris	22	Product manager	16	chris@gmail.com	9209255682	4	55.8%
6	Carl	20	Warehouse manager	4	Carl@gmail.com	2349420459	1	60.8%
7	Canem	42	Product manager	13	Canem@gmail.com	9716654168	3	55.8%
8	Derek	34	Product manager	17	Derek@gmail.com	7649768136	2	55.8%
9	Enbaraj	32	Product manager	17	Enbaraj@gmail.com	8624642379	2	55.8%
10	Ester	32	Warehouse manager	2	Ester@gmail.com	6694437569	2	60.8%
11	Ethan	52	Product manager	17	Ethan@gmail.com	2324549483	2	55.8%
12	Gabriel	58	Furniture designer	7	Gabriel@gmail.com	9876965600	1	56.7%
13	Henry	30	Warehouse manager	5	Henry@gmail.com	1142234690	3	60.8%
14	James	60	Furniture designer	11	James @gmail.com	7977918460	2	56.7%
15	John	58	Furniture designer	11	John@gmail.com	2648425390	4	56.7%
16	Joseph	56	Sales manager	18	Joseph @gmail.com	4794985241	2	71.7%
17	Joshua	34	Warehouse manager	4	Joshua@gmail.com	4916532736	3	60.8%
18	Matthew	52	Warehouse manager	2	Matthew@gmail.com	9806613387	2	60.8%
19	Michael	60	Product manager	17	Michael@gmail.com	3239215766	3	55.8%
20	Nicholas	29	Furniture designer	11	Nicholas@gmail.com	2331197345	2	56.7%
21	Noah	29	Warehouse manager	2	Noah@gmail.com	6768410563	4	60.8%
22	Oliver	59	Warehouse manager	5	Oliver @gmail.com	3615050676	3	60.8%

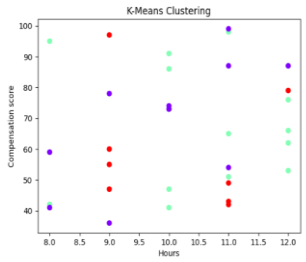
Culture | HCRI | BARS AND HCRI | Cost & Prod | Recruitment | Train | Perform | Talent

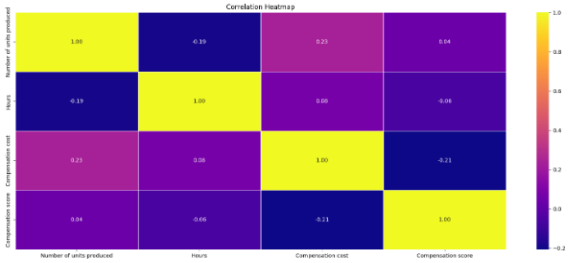
Code:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from scipy.cluster import hierarchy
from tabulate import tabulate
from sklearn.preprocessing import StandardScaler
df= pd.read_excel("D:\CIT\SEM 5\Human Resources System Developement Lab\EX
4.xlsx",sheet_name="BARS AND HCRI")
df.head(6)
df.dtypes
df.isnull().sum()
label_encoder = LabelEncoder()
df['Position_Code'] = label_encoder.fit_transform(df['Position'])
linkage_matrix = hierarchy.linkage(df[['BARS', 'Position_Code']], method='ward')
num_clusters = 2
labels = hierarchy.fcluster(linkage_matrix, num_clusters, criterion='maxclust')
df['Cluster'] = labels
cluster_counts = df.groupby(['Cluster', 'Position']).size().unstack(fill_value=0)
cluster_counts.plot(kind='bar', stacked=True, colormap='rainbow')
plt.title("Clustered Bar Chart of Position by Cluster")
plt.xlabel("Cluster")
plt.ylabel("Count")
plt.xticks(rotation=0)
plt.legend(title='Position', bbox_to_anchor=(1.05, 1), loc='upper left')
plt.show()
from sklearn.cluster import DBSCAN
bars = df['BARS'].values
age = df['Age'].values
feat = np.column_stack((bars, age))
scaler = StandardScaler()
feat = scaler.fit_transform(feat)
db = DBSCAN(eps=0.5, min_samples=5)
labels = db.fit_predict(feat)
df['Cluster'] = labels
plt.scatter(bars, age, c=labels, cmap='rainbow')
plt.xlabel('BARS')
plt.ylabel('Age')
plt.title('DBSCAN Clustering')
plt.show()
```

5.3 Cost & Productivity Metrics

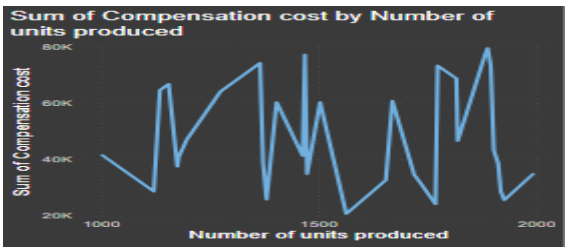
Analysis:





- There's a slight negative correlation between the number of units produced and hours worked, suggesting that higher productivity may lead to fewer hours worked, possibly indicating improved efficiency.
- A positive correlation exists between the number of units produced and compensation cost, indicating that increased production is associated with higher labor costs.
- There's a weak negative correlation between hours worked and the compensation score, implying that longer working hours may slightly lower employee satisfaction with compensation.
- A negative correlation exists between compensation cost and the compensation score, indicating that higher costs don't necessarily equate to higher employee satisfaction.

Dashboard:



- There is a substantial difference in compensation costs across various production levels.
- A small number of units contributed significantly to the overall compensation costs, indicating potential areas for cost optimization or further investigation into factors driving these variations in labor expenses.

Annexure:

	A	B	C	D
1	Number of units produced	Hours	Compensation cost	Compensation score
2	1871	11	39320	75
3	1845	10	73040	49
4	1904	9	23819	80
5	1031	9	21349	50
6	1580	10	69704	79
7	1295	11	74115	80
8	1948	9	70616	100
9	1102	12	56880	98
10	1212	11	34834	81
11	1820	10	45686	93
12	1880	10	63660	90
13	1624	11	52145	75
14	1406	12	62945	71
15	1295	9	55853	44
16	1495	10	70145	85
17	1302	9	34460	40
18	1117	10	23876	75
19	1012	8	51785	55
20	1823	8	60034	61
21	1189	9	77812	79
22	1776	8	73142	94

Culture | HCRI | BARS AND HCRI | Cost & Prod | Recruitment

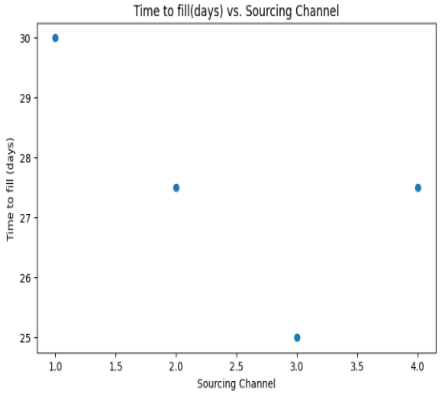
Code:

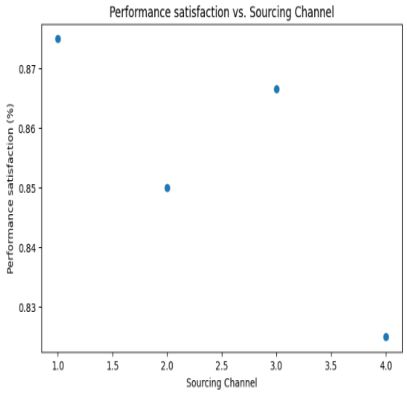
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from scipy.cluster import hierarchy
from tabulate import tabulate
from sklearn.preprocessing import StandardScaler
df= pd.read_excel("D:\CIT\SEM 5\Human Resources System Developement Lab\EX
4.xlsx",sheet_name="Cost & Prod")
df.head(6)
df.dtypes
df.isnull().sum()
cor = df.corr()
cor
hr = df['Hours'].values
cs = df['Compensation score'].values
kmeans = KMeans(n_clusters=3, n_init=10)
kmeans.fit(feat)
labels = kmeans.predict(feat)
df['Cluster'] = labels
plt.scatter(hr, cs, c=labels, cmap='rainbow')
plt.xlabel('Hours')
plt.ylabel('Compensation score')
plt.title('K-Means Clustering')
plt.show()
means = df.groupby('Number of units produced')['Hours'].mean()
print(means)
correlation = df['Hours'].corr(df['Compensation score'])
print(correlation)
import seaborn as sns
import matplotlib.pyplot as plt
plt.figure(figsize=(20, 8))
sns.heatmap(cor, annot=True, cmap='plasma', fmt=".2f", linewidths=.5)
plt.title("Correlation Heatmap")
plt.show()
```

5.4 Recruitment Metrics

Analysis:

```
Sourcing Channel
1    30.0
2    27.5
3    25.0
4    27.5
Name: Time to fill, dtype: float64
Sourcing Channel
1    0.875000
2    0.850000
3    0.866667
4    0.825000
Name: New hires performance satisfaction, dtype: float64
```



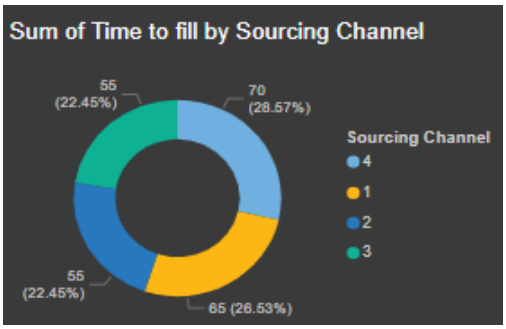


Sourcing Channels

1. Job Boards
2. Employee Referrals
3. Social network
4. Recruitment agencies

- Sourcing Channels 1 and 4 seem to perform well in terms of both quick hiring and high new hire satisfaction
- While Sourcing Channels 2 and 3 are somewhat in the middle, indicating room for improvement in either time to fill or satisfaction metrics.

Dashboard:



Sourcing channel 4 could be a valuable focus area to improve efficiency and reduce recruitment timelines.

Annexure:

	A	B	C	D	E	F	G
1	Cost involved in recruiting	Number of hires	Induction program cost	New hires performance satisfaction	Performance Differential	Time to fill	Sourcing Channel
2	1000	5	2000	90%	10%	30	2
3	1200	4	1000	70%	5%	20	4
4	1400	6	1500	90%	8%	25	2
5	1600	10	2000	70%	7%	30	4
6	1800	9	2000	65%	10%	30	3
7	2000	6	1000	70%	5%	20	4
8	2200	3	1500	65%	8%	25	3
9	2400	7	2000	50%	7%	30	1
10	2600	9	2000	50%	6%	35	1

Code:

```
import pandas as pd
import numpy as np from tabulate
import tabulate df= pd.read_excel("D:\CIT\SEM 5\Human Resources System Developement Lab\EX 4.xlsx",sheet_name="Recruitment")
df.head(6)
time_to_fill_by_sourcing_channel = df.groupby('Sourcing Channel')['Time to fill'].mean()
performance_satisfaction_by_sourcing_channel = df.groupby('Sourcing Channel')['New hires performance satisfaction'].mean()
print(time_to_fill_by_sourcing_channel)
print(performance_satisfaction_by_sourcing_channel)
import matplotlib.pyplot as plt
plt.figure(figsize=(8, 5))
plt.scatter(performance_satisfaction_by_sourcing_channel.index, performance_satisfaction_by_sourcing_channel.values)
plt.xlabel('Sourcing Channel')
plt.ylabel('Performance satisfaction (%)')
plt.title('Performance satisfaction vs. Sourcing Channel')
plt.show()
import matplotlib.pyplot as plt
plt.figure(figsize=(8, 5))
plt.scatter(time_to_fill_by_sourcing_channel.index, time_to_fill_by_sourcing_channel.values)
plt.xlabel('Sourcing Channel')
plt.ylabel('Time to fill (days)')
plt.title('Time to fill(days) vs. Sourcing Channel')
plt.show()
```

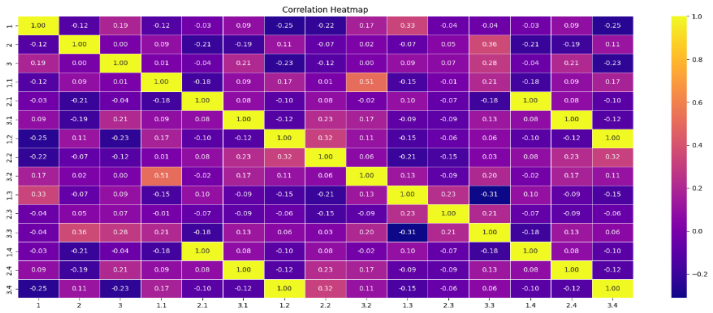
5.5 Learning and development Metrics

Analysis:

	Type of training	No of hours of training	Content of training	\
0	8	8	8	
1	8	8	5	
2	6	9	15	
3	8	8	8	
4	11	8	6	
5	9	4	6	
6	8	12	4	
7	11	10	15	
8	12	4	8	
9	9	8	6	

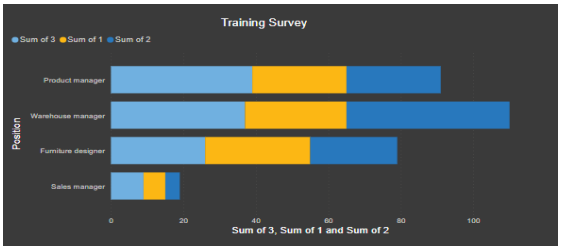
	Skill development	Knowledge level	Score	Satisfaction
0	10	10	44	Low
1	7	8	36	Low
2	7	12	49	High
3	8	10	42	Low
4	11	9	45	Low
5	8	5	32	Low
6	8	10	42	Low
7	11	12	59	High
8	12	7	43	Low
9	13	9	45	Low

```
Satisfaction
High    17
Low     16
Name: count, dtype: int64
```



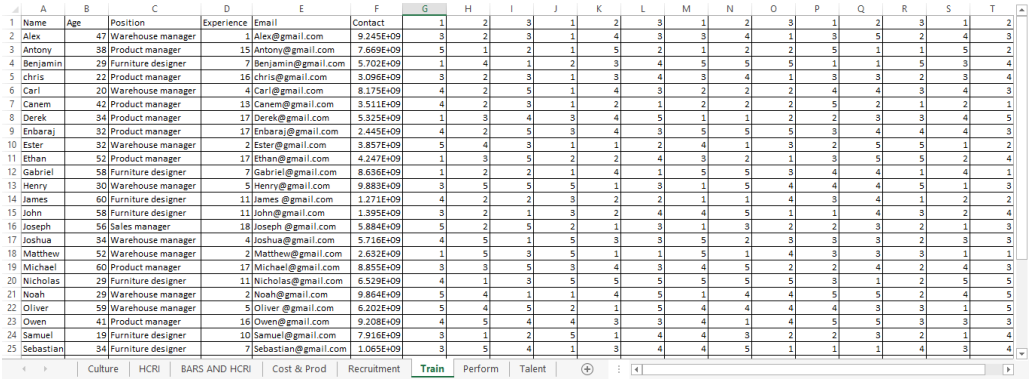
Tt's evident that the content of training varies, with some employees receiving longer and more extensive training. However, despite differences in training duration and content, both high and low satisfaction scores are present, indicating that training alone may not be the sole driver of job satisfaction.

Dashboard:



significant variations in the metric across different positions, with the warehouse manager having the highest score

Annexure:



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	Name	Age	Position	Experience	Email	Contact	1	2	3	1	2	3	1	2	3	1	2	3	1	2
2	Alex	47	Warehouse manager	1	Alex@gmail.com	9.245E+09	3	2	3	1	4	3	3	4	1	3	5	2	4	3
3	Antony	38	Product manager	15	Antony@gmail.com	7.669E+09	5	1	2	1	5	2	1	2	2	5	1	1	5	2
4	Benjamin	29	Furniture designer	7	Benjamin@gmail.com	5.702E+09	1	4	1	2	3	4	5	5	5	1	1	5	3	4
5	chris	22	Product manager	16	chris@gmail.com	3.096E+09	3	2	3	1	3	4	3	4	1	3	3	2	3	4
6	Carl	20	Warehouse manager	4	Carl@gmail.com	8.175E+09	4	2	5	1	4	3	2	2	2	4	4	3	4	3
7	Canem	42	Product manager	13	Canem@gmail.com	3.511E+09	4	2	3	1	2	1	2	2	2	5	2	1	2	1
8	Derek	34	Product manager	17	Derek@gmail.com	5.325E+09	1	3	4	3	4	5	1	1	2	2	3	3	4	5
9	Enbaraj	32	Product manager	17	Enbaraj@gmail.com	2.445E+09	4	2	5	3	4	3	5	5	5	3	4	4	4	3
10	Ester	32	Warehouse manager	2	Ester@gmail.com	3.857E+09	5	4	3	1	1	2	4	1	3	2	5	5	1	2
11	Ethan	52	Product manager	17	Ethan@gmail.com	4.247E+09	1	3	5	2	2	4	3	2	1	3	5	5	2	4
12	Gabriel	58	Furniture designer	7	Gabriel@gmail.com	8.636E+09	1	2	2	1	4	1	5	5	3	4	4	1	4	1
13	Henry	30	Warehouse manager	5	Henry@gmail.com	9.883E+09	3	5	5	5	1	3	1	5	4	4	4	5	1	3
14	James	60	Furniture designer	11	James @gmail.com	1.271E+09	4	2	2	3	2	2	1	1	4	3	4	1	2	2
15	John	58	Furniture designer	11	John@gmail.com	1.395E+09	3	2	1	3	2	4	4	5	1	1	4	3	2	4
16	Joseph	56	Sales manager	18	Joseph @gmail.com	5.884E+09	5	2	5	2	1	3	1	3	2	2	3	2	1	3
17	Joshua	34	Warehouse manager	4	Joshua@gmail.com	5.716E+09	4	5	1	5	3	3	5	2	3	3	3	2	3	3
18	Matthew	52	Warehouse manager	2	Matthew@gmail.com	2.632E+09	1	5	3	5	1	1	5	1	4	3	3	3	1	1
19	Michael	60	Product manager	17	Michael@gmail.com	8.855E+09	3	3	5	3	4	3	4	5	2	2	4	2	4	3
20	Nicholas	29	Furniture designer	11	Nicholas@gmail.com	6.529E+09	4	1	3	5	5	5	5	5	5	3	1	2	5	5
21	Noah	29	Warehouse manager	2	Noah@gmail.com	9.864E+09	5	4	1	1	4	5	1	4	4	5	5	2	4	5
22	Oliver	59	Warehouse manager	5	Oliver @gmail.com	6.202E+09	5	4	5	2	1	5	4	4	4	4	3	3	1	5
23	Owen	41	Product manager	16	Owen@gmail.com	9.208E+09	4	5	4	4	3	3	4	1	4	5	5	3	3	3
24	Samuel	19	Furniture designer	10	Samuel@gmail.com	7.916E+09	3	1	2	5	1	4	4	3	2	2	3	2	1	4
25	Sebastian	34	Furniture designer	7	Sebastian@gmail.com	1.065E+09	3	5	4	1	3	4	4	5	1	1	1	4	3	4

Culture | HCRI | BARS AND HCRI | Cost & Prod | Recruitment | Train | Perform | Talent

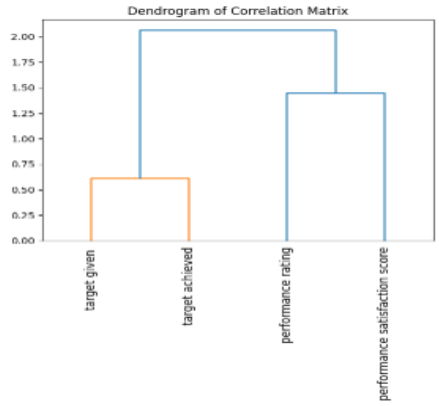
Code:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from scipy.cluster import hierarchy
from tabulate import tabulate
from sklearn.preprocessing import StandardScaler
df= pd.read_excel("D:\CIT\SEM 5\Human Resources System Developement Lab\EX
4.xlsx",sheet_name="Train")
df.head(6)
data = df.drop(['Name', 'Age', 'Position', 'Experience', 'Email', 'Contact'], axis=1)
data.dtypes
data.isnull().sum()
df1=df.iloc[:,5:]
print(df1.head())
from sklearn.preprocessing import StandardScaler
fnames=['Type of training','No of hours of training','Content of training','Skill development','Knowledge
level']
f_dict=dict()
for i in range(0,5):
   f_dict[fnames[i]]=df1.iloc[:,3*i+1:3*i+4].sum(axis=1)
fac_df=pd.DataFrame(f_dict)
print(fac_df.head())
fac_df["Score"] = fac_df.iloc[:, 0:5].sum(axis=1)
mean = int(fac_df["Score"].mean())
fac_df.loc[fac_df['Score'] >= mean, 'Satisfaction'] = 'High'
fac_df.loc[fac_df['Score'] < mean, 'Satisfaction'] = 'Low'
print(fac_df.head(10))
count = fac_df["Satisfaction"].value_counts()
print(count)
cor = data.corr()
cor
import seaborn as sns
import matplotlib.pyplot as plt
plt.figure(figsize=(20, 8))
sns.heatmap(cor, annot=True, cmap='plasma', fmt=".2f", linewidths=.5)
plt.title("Correlation Heatmap")
plt.show()
```

5.6 Performance Management Metrics

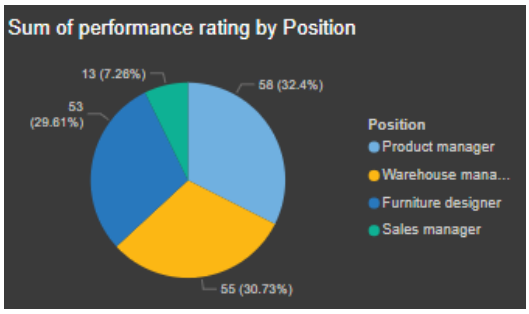
Analysis:

	target given	target achieved	performance rating	performance satisfaction score
target given	1.000000	0.625463	-0.362026	0.109547
target achieved	0.625463	1.000000	-0.094394	0.244554
performance rating	-0.362026	-0.094394	1.000000	0.061552
performance satisfaction score	0.109547	0.244554	0.061552	1.000000



The analysis indicates that target achievement is positively related to performance satisfaction, but higher assigned targets may be associated with slightly lower performance ratings.

Dashboard:



The analysis highlights the varying performance ratings among different positions within the organization. The Product Manager stands out with the highest rating, contributing significantly to the overall metric.

Annexure:

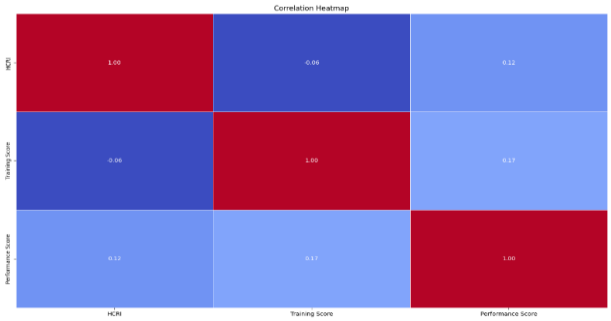
	A	B	C	D	E	F	G	H	I	J
1	Name	Age	Position	Experience	Email	Contact	target given	target achieved	performance rating	performance satisfaction score
2	Alex	47	Warehouse manager	1	Alex@gmail.com	9244656390	3	1	5	84
3	Antony	38	Product manager	15	Antony@gmail.com	7669123124	3	2	7	75
4	Benjamin	29	Furniture designer	7	Benjamin@gmail.com	5701550406	1	0	6	100
5	chris	22	Product manager	16	chris@gmail.com	3096064359	3	2	3	50
6	Carl	20	Warehouse manager	4	Carl@gmail.com	8174763960	1	1	4	88
7	Canem	42	Product manager	13	Canem@gmail.com	3511283378	3	1	5	64
8	Derek	34	Product manager	17	Derek@gmail.com	5324897708	3	1	2	96
9	Enbaraj	32	Product manager	17	Enbaraj@gmail.com	2445248239	2	1	1	94
10	Ester	32	Warehouse manager	2	Ester@gmail.com	3856945377	3	1	7	99
11	Ethan	52	Product manager	17	Ethan@gmail.com	4246974101	1	0	4	76
12	Gabriel	58	Furniture designer	7	Gabriel@gmail.com	8635786294	1	1	7	87
13	Henry	30	Warehouse manager	5	Henry@gmail.com	9882797905	3	2	6	94
14	James	60	Furniture designer	11	James @gmail.com	1270742480	3	1	6	51
15	John	58	Furniture designer	11	John@gmail.com	1394625068	1	0	8	82

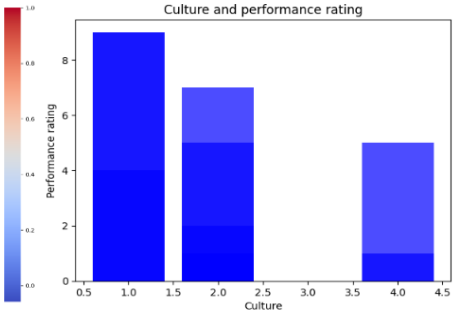
Code:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from scipy.cluster import hierarchy
from tabulate import tabulate
from sklearn.preprocessing import StandardScaler
df= pd.read_excel("D:\CIT\SEM 5\Human Resources System Developement Lab\EX
4.xlsx",sheet_name="Perform")
df.head(6)
data = df.drop(['Name', 'Age','Position', 'Experience', 'Email', 'Contact'], axis=1)
data.dtypes
data.isnull().sum()
cor = data.corr()
print(cor)
plt.figure(figsize=(10, 10))
plt.pie(df['target achieved'], labels=df['performance satisfaction score'], autopct='%1.1f%%')
plt.title('Relationship between Target achieved and Performance satisfaction score')
plt.show()
```

5.7 Talent Management Metrics

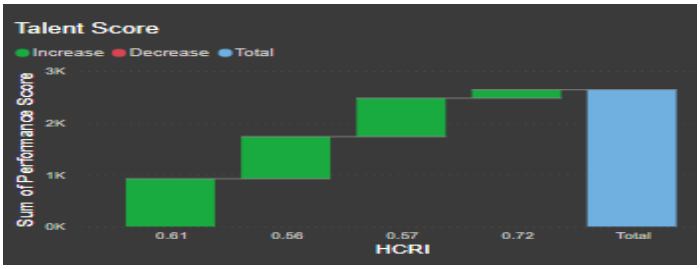
Analysis:





Correlations are relatively weak, and other factors beyond HCRI and training may significantly influence performance.

Dashboard:



Talent score increases gradually while training the employees regularly to improve their performance.

Annexure:

	A	B	C	D
1	**Name**	HCRI	Training Score	Performance Score
2	Alex	61%	28	84
3	Antony	56%	36	63
4	Benjamin	57%	23	71
5	chris	56%	35	98
6	Carl	61%	22	71
7	Canem	56%	31	71
8	Derek	56%	29	92
9	Enbaraj	56%	25	86
10	Ester	61%	33	66
11	Ethan	56%	24	75
12	Gabriel	57%	31	80
13	Henry	61%	24	94
14	James	57%	23	64
15	John	57%	28	80
16	Joseph	72%	27	94
17	Joshua	61%	25	72
18	Matthew	61%	32	84
19	Michael	56%	24	60
20	Nicholas	57%	31	70

Code:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
from sklearn.linear_model import LinearRegression
from tabulate import tabulate
df= pd.read_excel("D:\CIT\SEM 5\Human Resources System Developement Lab\EX
4.xlsx",sheet_name="Talent")
df.head(6)
data = df.iloc[1:].drop(['Name'], axis=1)
data.isnull().sum()
data
import seaborn as sns
import matplotlib.pyplot as plt
plt.figure(figsize=(22, 10))
sns.heatmap(cor_matrix, annot=True, cmap="coolwarm", fmt=".2f", linewidths=0.5)
plt.title("Correlation Heatmap")
plt.show()
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
np.random.seed(10)
df = pd.DataFrame({'Culture': np.random.randint(1, 5, 10),
                   'Performance rating': np.random.randint(1, 10, 10),
                   'Recruitment source': np.random.randint(1, 5, 10),
                   'Training hours': np.random.randint(1, 10, 10)})
plt.figure()
plt.bar(df['Culture'], df['Performance rating'], color='blue', alpha=0.7)
plt.xlabel('Culture')
plt.ylabel('Performance rating')
plt.title('Culture and performance rating')
plt.show()
```

6. Predictive Analytics

Sno	Variable A	Variable B	Reason for Correlation	Correlation Coefficient	Result	Description
1	Employee Tenure	Number of Trainings	To understand if employees with longer tenure engage in training	0.92	High Correlation	The organization invests in employee training and development. Longer-tenured employees are more likely to engage in upgrading their skillset and profiles.

2	Employee Tenure	Training Feedback Score	To assess if long-term employees are satisfied with training	0.6	Medium Correlation	Moderate correlation suggests that long-term employees tend to be moderately satisfied with the quality of training during their tenure.
3	Number of Trainings	Training Feedback Score	To ensure employees receive adequate training	0.58	Medium Correlation	Average correlation indicates that employees are moderately satisfied with the quality of training sessions provided to them.
4	Employee Performance Rating	Employee Engagement Score	To check alignment between performance rating and engagement score	0.1	Low Correlation	Low correlation indicates that performance ratings have a minimal impact on employee engagement in the organization.
5	Employee Performance Rating	Training Feedback Score	To assess alignment between performance rating and training satisfaction	0.09	Low Correlation	Low correlation suggests that performance ratings have minimal influence on training feedback provided by employees.
6	Employee Engagement Score	Training Feedback Score	To verify if engaged employees provide positive training feedback	0.44	Low Correlation	Low correlation shows that employee engagement moderately influences training feedback provided by employees.
7	Employee Performance Rating	Employee Tenure	To check alignment between performance and tenure	0.21	Low Correlation	Low correlation indicates that employee tenure has a limited impact on performance ratings.
8	Employee Engagement Score	Employee Tenure	To assess alignment between engagement and tenure	0.7	High Correlation	High correlation suggests that longer-tenured employees tend to be more engaged. This could be due to a comfortable working environment, young work culture, and a conducive learning environment that keeps employees engaged.

7. Conclusion

Xtreme Furniture & Co's enduring commitment to quality, innovation, and operational efficiency positions it as a resilient and competitive player in the furniture industry. The company's adaptability to changing market dynamics and unwavering customer focus bode well for its future growth and success.

After analyzing the data using graphical representations, correlation and regression, conclusions from the findings are mentioned below:

1. Xtreme Furniture & Co demonstrates a commitment to employee learning and development by investing in training to enhance job profiles and required skill sets. However, feedback scores indicate room for improvement in training effectiveness. The company should conduct regular assessments to ensure training programs are aligned with employees' day-to-day work and adjust training content accordingly.
2. The distribution of employee performance ratings at Xtreme Furniture & Co follows a bell curve pattern, suggesting that ratings are distributed relatively evenly across the organization. However, minimal correlation is observed between performance ratings and actual employee performance.
3. Employee engagement and satisfaction levels at Xtreme Furniture & Co appear to be moderately high, with many employees having tenure of around seven years. Despite this, certain organizational measures do not align with the high engagement levels. Xtreme Furniture & Co should focus on introducing innovative culture and value practices that resonate with and engage employees effectively.
4. Xtreme Furniture & Co experiences high attrition rates, particularly among younger employees recruited from colleges and universities. To address this issue, the company should offer career development opportunities and growth pathways within the organization. Additionally, attractive incentives should be provided to retain talent and discourage employees from seeking opportunities elsewhere.
5. Diversity measures within the organization, especially gender balance, require more attention. The gender ratio at Xtreme Furniture & Co is not proportionately balanced. To create a more engaging workplace, the company should implement strategies to enhance diversity and inclusion, fostering a more inclusive work environment.

---------- End of Project----------