

## People Analytics

### Groupwork Use Cases 2 – Employee Engagement and Survey Analytics

In this workshop, you will analyze employee engagement using both individual- and team-level data. You'll apply factor analysis, reliability testing, t-tests, and multiple regression to real-world employee survey data. The goal is to understand how engagement is measured, how well survey instruments perform, and what factors predict engagement across teams.

#### Prompt 1: Exploratory Factor Analysis on Engagement Items

Dataset: Ch5\_RAW\_Survey\_Results.xlsx

Tasks:

- Select the seven engagement and support items (Eng1–Eng4, pos1–pos3).
- Conduct an exploratory factor analysis with parallel analysis and oblimin rotation.
- Interpret the factor structure: how many latent constructs are present?
- Assign names to the resulting factors based on item content.

Deliverables:

- Factor loadings table and scree plot.
- Interpretation of number and type of constructs.
- Short reflection: How could these constructs guide HR intervention design?

#### Prompt 2: Scale Reliability Testing

Dataset: Ch5\_RAW\_Survey\_Results.xlsx

Tasks:

- Select the four OCB items (ocb1–ocb4).
- Compute Cronbach's alpha for the scale.
- Identify any items that reduce reliability and could be dropped.
- Reflect on the trade-off between brevity and reliability.

Deliverables:

- Cronbach's alpha result with interpretation.
- Recommendation on whether to keep or drop specific items.
- Reflection: Why does internal consistency matter in employee surveys?

#### Prompt 3: Principal Component Analysis on Aggregated Survey Items

Dataset: Ch5\_SURVEY\_PROVIDER\_ENGAGEMENT\_DATA\_TEAM\_LEVEL.xlsx

Tasks:

- Conduct a principal component analysis (PCA) on the 9 team-level engagement items.
- Identify and name the components.
- Interpret what each component represents in terms of employee experience.

Deliverables:

- Component loadings table.
- 3D scatterplot showing component space (optional).
- Description of the constructs found and their strategic relevance.

#### **Prompt 4: t-Tests on Engagement Across Teams**

Dataset: Ch5\_Engagement\_CASE\_Group\_level\_data\_2023.xlsx

Tasks:

- Conduct t-tests comparing engagement by location (London vs Other) and by function (Sales vs Prof. Services).
- Use Levene's test to check for equal variances.
- Interpret results and discuss practical implications.

Deliverables:

- t-test outputs with interpretation.
- Summary of significant and non-significant findings.
- Recommendations: Should HR act on these differences?

#### **Prompt 5: Multiple Regression to Predict Team-Level Engagement**

Dataset: Ch5\_Engagement\_CASE\_Group\_level\_data\_2023.xlsx

Tasks:

- Run a multiple regression with engagement as the dependent variable.
- Use predictors: supervisor score, integrity score, team size, % male, % UG, location, and function.
- Analyze standardized coefficients and significance levels.
- Identify the most important drivers of engagement.

Deliverables:

- Regression summary table.
- Interpretation of model strength and variable impacts.
- Actionable recommendations for HR strategy.