

## Data-Driven Management assignment brief

(please see unit handbook for formatting and submission guidelines and assessment criteria)

The students will be introduced to a fictional company that wants to analyse a management problem using data analytics. Students will analyse a dataset and visualise the current performance of the company. Each student will be issued with a unique variation of a simulated dataset.

Students are required to write a report to the Board of Directors demonstrating their ability to analyse, visualise, and evaluate a performance management problem. The report should propose a performance dashboard and include visualisations that lead to recommendations.

The report should be structured as follows:

- **an executive summary** – please review the structure of the executive summary on the unit's Brightspace pages.
- an introduction of the **background of the business question** – you can use references here, but references are not required.
- a **description of the data preparation**, including:
  - data restrictions – the rows you deleted,
  - variable definition – adjustments to the columns or data transformations,
  - a table with the variable definition of all variables used in the visualisations.
- **data visualisation and descriptive statistics**: use figures and descriptive statistics tables to develop a data story.
- **recommendations** for actions based on the analysis including:
  - managerial consequences for customer dissatisfaction
  - quality of the analysis
- an appendix with the **performance dashboard** including key descriptive numbers and key figures.

Additionally, each student has to submit:

- an **R code** running without interruption and replicating each table and figure. The R code shall entail comments and a clear signposting to all tables and figures in the report (either via comment or name of the output file)

This is an individual piece of work.

Word count: 2000 words (+ or -10%). If the word count is violated beyond the +/- 10% variation, your mark will be reduced by 5 points for 100 words above/ below the threshold. The word count includes all words in the WORD document except the first page and words in figures and charts generated in R. The first page should include the title of your report, your name, data number, student number and a word count only.

## Description of the data

You are commissioned to analyse the parcel orders of a prominent online retailer and derive recommendations for actions to improve a key performance target for the organisation. In addition, you should provide a dashboard based on your analysis. The dashboard should be calibrated on the provided historical data.

You got a 5% random sample of the customer activities over the past quarter.

## Variable definition in parcel data

driver id	a generated driver identifier number.
promotion purchase	indicates if the parcel was purchased from a promotion.
priority delivery	an indicator revealing if a parcel was given priority delivery.
parcel payment	an indicator revealing the payment method for the parcel.
parcel value	indicates the value of the parcel in £'s.
parcel status	indicates the status on the parcel manifest (delivered, lost, returned).
parcel arrival	indicates the scheduled parcel destination arrival (same-day, or between 1 to 5 days late).
parcel returned	indicator revealing whether a parcel was returned by the customer.
time of delivery	indicates the time of delivery of the parcel (morning, afternoon, evening).

## Variable definition in driver data

driver id	a generated driver identifier number.
gender	indicates the driver's gender.
experience	indicates the years of driving experience.
delivery location	indicates the location of parcel delivery (rural or urban).
van type	indicates the type of van used for delivery (small, medium, large).
work pattern	indicates the work status of the driver (zero-hour contract, part-time, full-time).