

## Business Analytics Projects

### Project Scope Requirements

Modern business relies more and more on analytics for understanding and predicting customer behaviour, monitoring and optimising its processes and managing and supporting its suppliers. We're offering businesses the opportunity to benefit from Durham University's Business Analytics Projects which run for three months – from June to August. The projects provide the opportunity for one of our students to analyse business data at an advanced level, to explore a specified business issue. The data analysis findings with valuable business insights are presented to the company in the form of an Executive Summary.

**Responsibilities** of the host company are:

- To provide a business analytics topic – define the project problem and scope;
- Nominate the main contact person responsible for sponsoring the project;
- To meet with the student and supervisor to explain the suggested topic, scope of the problem and desired outputs from the student;
- Ensure the student has access to relevant company information and key stakeholders;
- Hand-over the data that is to be used for the project by the end of April;
- To meet (in-person or via video/voice call, e.g., Zoom or MS Teams) with the student during the project duration from **June to August** in **2-3** meetings to evaluate the project's progress or alignment with the scope.
- Please note that the host company is not responsible for supervising the projects; academic staff from Durham University will be allocated to supervise the projects.

**Project topics** should focus on exploring, assessing and furthering business analytics skills and knowledge. The range of skills students have gathered during their MSc programme comprise: Learning from data, Retail Analytics, Data Analytics for Strategic Decision-Making, Natural Language Analysis, Statistical Modelling with Excel, Data Handling with Visualisation. For more information please visit our website [Business Analytics Projects - Durham University Business School](#).

Please avoid topics that focus exclusively on system development (e.g., developing only a dashboard).

In defining a project scope, take into account that students will be marked on research related components. That is, these should in essence be small scale research projects, with exploration of a problem, research questions, review of state of the art and suitable methods, and data analysis.

**Examples** of project topics include:

Product Design: Inform technological product design decisions using data

Data Analytics

- Customer segmentation with cluster analysis
- Identification of target customers for advertisements with classification
- Machine learning for predicting market acceptance

Natural Language Processing

- Social media use for sentiment analysis
- Design of chat-bots for customer support
- Identifying customer priorities through analysis of product reviews

#### Operational Research

- Simulation of hospital operations
- Optimisation of manufacturing and inventory systems

#### Retail management

- Inform retail strategy decisions using data
- Understanding customer behaviour

Examples of project scopes from previous academic years are in the attached pdf file.

**Data** – having access to suitable data is a major component for Business Analytics Projects. Therefore, in defining the project scopes, please account for and include the following in the project description:

1. The company should always identify external data source that can be used for the project, e.g.:
  - Identify relevant public dataset(s)
  - Define data collection from specific data sources, by e.g. requesting use of web scraping from specified online platforms.
2. Additionally, the company should prepare and provide a company **dataset** that comprises data aligned with the project topic and analyses defined in the project scope. The datasets should be prepared and available to students by the **end of April**.
3. If proprietary data is not available, the company should state that clearly. In which case, the company should specify the source of data or a link to a public dataset(s) that students are supposed to use for this project, as stated under point 1.
4. Primary data collection (e.g., interviews and questionnaire surveys) should **not** be requested for Business Analytics Projects.

#### Examples of data format:

- Data formats: csv, json (however, students can be asked to perform web scraping).
- Programming language: Python.
- Tools: Excel, Tableau, Python libraries, etc

**Project scopes** can be submitted via the following MS Form: [link](#). The submitted project scopes will be reviewed by the programme's academic staff to check they meet the project requirements. The project scopes can be rejected, approved or a revision requested. If a revision is requested from the company, comments will be forwarded to the company for consideration and a revised project scope should be resubmitted via the same MS Form link.

#### Timeline:

- October – December: Project scope sourcing
- January: Review, revision and approval of project scopes.
- End of April: Data (source) hand-over.

- June – August: students work on projects - 2-3 meetings with students.

**Number of students** - Often several students want to work on the same topic. Therefore, it would be of great help if you could specify how many students you can host, that is, how many students you would prefer to work on a project topic you propose. If you propose a larger project with several outputs, which can be broken down into sub-projects, it can be expected that more students can work on it.

**Deliverables** - Students are expected to produce an **Executive Summary** of the overall project and its results and deliver it to the host company at the end of their project work, i.e. by the beginning of September.

The host company can request to see the overall project report (i.e., thesis), however, it is up to the student to decide whether they feel comfortable sharing their project report, and this only upon all the academic marking has been completed.

The host company can also ask the student to prepare a more formal presentation to report on the project progress and the final project findings at the meetings (the 2-3 meetings taking place between the company and the student in the period June-August).

**NDA** - We understand that projects may touch on confidential information, so we work with complete integrity, discretion and professionalism, underpinned by a **non-disclosure agreement** provided by the University.