IMPACT OF UNFORESEEN EVENTS SUCH AS PANDEMIC ON BUSINESS LANDSCAPE.

Student: Nency Kukadiya
ID: w1933691
Supervised by: Dr. Salma Chahed

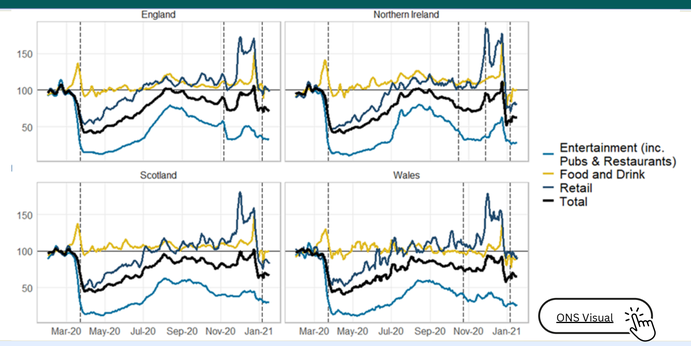
The problem statement

- COVID-19 pandemic disrupted a number of industries, resulting in previously unseen challenges such supply chain failures, labour shortages, and changes in customer behaviour.Businesses had to adjust quickly in order to preserve continuity and resilience as a result of these interruptions.
- The long term effects of these adjustments on workforce demographics, trade resilience, financial performance, and general business strategy, however, are still not well understood.
- By researching how businesses responded to these issues and detecting trends that suggest resilience or vulnerability, this project seeks to close this gap by analysing UK business data from the Office for National Statistics'(ONS) COVID-19 Business insights.

Aims & Objectives

The aim of this project is to analyse important information that can guide plans for unforeseen circumstances in the future, advancing our knowledge of crisis management and corporate resilience.

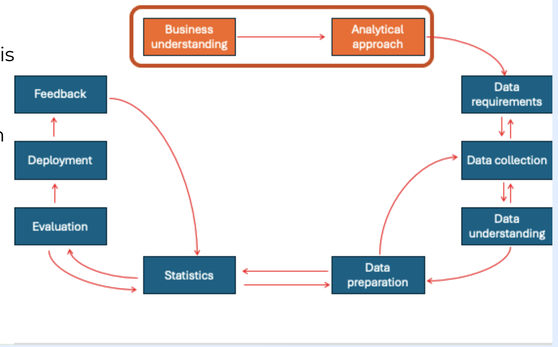
- Examine how sector-specific financial performance evolved in response to the disruptions caused by COVID-19.
- Analyse workforce dynamics and the shifting employment landscape as businesses responded to pandemic conditions.
- Evaluate trade variations and the factors that contributed to resilience among pandemic-driven challenges.
- Explore the strategic adaptations businesses implemented to navigate the ongoing impacts of COVID-19.



Data source & Methodology

I am going to analyse the Impact of COVID-19 on Business dataset from **The Office for National Statistics (ONS)**, which provides publicly available, high- quality, aggregate- level data on workforce demographics, financial performance, trade, and resilience metrics, covering the period from 2020 onward. This dataset is non-sensitive, anonymised, and representative across various UK sectors, making it a valuable and ethical resource for analysing business responses to unforeseen events like the COVID-19 pandemic.

- **Data collection:** Collect essential ONS datasets on trade, workforce changes and financial performance.
- **Data preprocessing:** Python will be used to ensure the data is clean and well-structured for analysis Including checks for any minor null values or inconsistencies across sectors. Any skewed distributions or outliers that could influence statistical analysis will be addressed if necessary.
- **Exploratory data analysis (EDA):** Analyse trends and important insights about sector impacts with descriptive statistics and visual presentation.
- **Hypothesis testing:** T-tests and ANOVA will be conducted to confirm the trends found in the EDA phase, providing quantitative support for any significant changes in business metrics.
- **Storytelling and Insight development:** Create a coherent narrative that illustrates industry shifts, recovery trends and resilience strategies.
- **Reporting:** It will present key insights through descriptive analysis and visuals, assessing resilience strategies and their future applicability.



References

[1] https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3649813 [Accessed 22 Oct. 2024]
[2] https://data.yelp.com/covid-19-second-anniversary [Accessed 22 Oct. 2024].
[3] https://scholar.google.co.uk/scholar?q=mckinsey+covid+impact+on+business+report &hl=en&as_sdt=0&as_vis=1&oi=scholar.
[4] https://www.weforum.org/agenda/2020/06/how-covid-19-will-change-entrepreneurial-business/.
[5] https://doi.org/10.1016/j.ijinfomgt.2020.102173.

Literature review: Similar research

- To analyse how local economies are adapting, **Yelp's data science team** examined each year of the pandemic to surface notable trends, which illustrate the pandemic's impact on customer behaviour and business growth. The findings highlight a preference for outdoor dining and activities, an increase in businesses offering contactless payments, and how new variants have impacted business openings. [2]
- **McKinsey Global institute Analysis department** has discovered that the first-time online grocery shoppers accounted for 30 to 50 percent of total U.S.A. customer shopping online in July 2020. [3]
- According to **International Journal of Information Management** , within a few years, the pandemic has forced businesses to find digital alternatives or find safe, low-contact methods of delivering their products and services. These decisions have given businesses the chance to be creative in rethinking their product and service delivery methods and channels, creating alternative digital products and services, and redesigning their current products. [5]

Tools & Skills

- **Python**, primarily using **Google Colab** for accessible, cloud-based analysis and collaboration.
- **NumPy** and **pandas** libraries will be employed for cleaning, transforming, and structuring the data.
- **Pandas** for data exploration and summary statistics, with **Matplotlib** and **Seaborn** for visualizing trends and distributions. **Tableau** for telling the story, or **PowerBI** may also be used to create interactive visuals.
- **SciPy** and **statsmodels** for statistical analysis, including hypothesis testing and regression analysis.
- **GitHub** for project version control, ensuring data and code are tracked and backed up efficiently.

Timeline

Milestones/duration	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Research	■	■	■					
Data collection & preprocessing			■					
Exploratory data analysis				■				
Hypothesis testing					■			
Storytelling with Insights						■		
Evaluation and interpretation					■	■	■	
Reporting				■	■	■	■	■

Risk analysis

- If data limitations arise with the ONS dataset, supplemental sources or sector-focused analysis will be used. Technical challenges with advanced visualisation tools may be mitigated by relying on simpler visualisations through Matplotlib and Seaborn for essential insights.
- If potential timeline delays, especially in data preprocessing or EDA, It will be addressed by prioritising core tasks and reallocating resources as needed. If hypothesis testing produces ambiguous results, alternative statistical approaches, such as non-parametric tests, It will be employed to ensure robust findings. This structured approach and proactive risk management aim to ensure project adaptability and success.