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**Assessment Cover Page**

*Digital Transformation and its influence on the Competitiveness of Irish Companies*

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| *Module Title* | Strategic Thinking |
| *Assessment Title* | Project Capstone |
| *Assessment Due Date* |  |
| *Date of Submission* |  |

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I further confirm that this work has not previously been submitted for assessment by myself or someone else in CCT College Dublin or any other higher education institution.

Abstract

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# Introduction

This study aims to examine the economic and technological vulnerability of Ireland’s tech sector amidst global disruption in 2025. Ireland, as a key technological hub within Europe, is facing increasing vulnerability to global disruptions. In 2025, the confluence of geopolitical tensions, economic uncertainty and rapidly evolving technological advancements present significant challenges. These are not only affecting businesses operational models but are also putting at risk the long-term sustainability of the technicology sector, an industry integral to Ireland’s economy. As digital landscape continues to shift, understanding how these global forces interacts with Ireland’s technological resilience is crucial for shaping strategies that ensure the country’s competitive edge and economic security.

**Problem definition:**

The phenom to study is how geopolitical instability, economic uncertainty and technological transformation impact the growth, stability and innovation capacity of technology companies operating in Ireland. The problem lies in leveraging data driven insights to determine how these actors can be effectively utilized to ensure that Ireland remains a competitive and sustainable player in the global tech market. The study will collect and analyse relevant data from industry reports, market trends and company performance metrics to uncover the patterns and insights that can inform resilience strategies.

**Objectives:**

1. To analyse the impact of geopolitical instability and economic uncertainty on the performance of technology companies in Ireland by collecting and examining industry data with the goal of identifying key resilience factors by the end of 2024.

To assess the role of technological transformation in driving innovation and growth within the iris tech sector by conducting a comprehensive analysis of technological adoption trends and the correlation with company success metrics aiming to deliver a detailed report by the end of 2024

To develop a predictive model using Data Analytics techniques that identifies key drivers of resilience for Irish tech companies providing recommendations on strategies for maintaining long term competitiveness in the global market.

**Literature review**

Existing research highlights the role of R&D, digital transformation, and regulatory frameworks in shaping innovation ecosystems (OECD, 2021; European Commission, 2023). However, recent global events—such as Brexit, the Ukraine war, and supply chain disruptions—have altered investment patterns and innovation priorities (IMF, 2023).

Geopolitical tensions and economic instability influence corporate risk-taking and R&D investment. Studies show that uncertainty reduces funding for high-risk innovation, leading firms to focus on regulatory compliance rather than breakthrough advancements (Pisani et al., 2022). Ireland, a key European tech hub, faces additional pressure from EU regulations, talent shortages, and changing FDI trends (Enterprise Ireland, 2023).

**Scope Methodology**

* Data collection: utilize publicly accessible datasets, including the Community Innovation Survey CIS and Eurostat database to gather information on innovation metrics, economic indicators and policy variables.
* Clean and normalize the data to ensure consistency handling missing values and outliers appropriately.
* Exploratory Data Analysis (EDA) employs python libraries such as Pandas, Matplotli to conduct EDA, identifying key patters and correlations
* Machine Learning implementing a regression and classification model using Scikit learn to predict innovation outcomes based on selected features
* Visualization of the roadmap through an interactive dashboard using Plotly to present findings in an accessible manner.

**Out of Scope:**

* Primary data collection like surveys, experts interview
* In depth case studies of individual companies
* Legal or policy enforcement aspects of intellectual property or patents

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| --- | --- | --- |
| Phase | Task | Duration |
| Semester 1 | | |
|  | Literature review and Scope definition |  |
|  | Data Collection and cleaning |  |
|  | Exploratory Data Analysis (EDA) |  |
|  | First report and Dashboard draft |  |
| Semester 2 | | |
|  | Predictive modeling with ML |  |
|  | Dashboard finalization and data visualization |  |
|  | Formulation of policy recommendations |  |
|  | Final report and presentation |  |

**Data Sources:**

The project will rely on publicly datasets from Eurostat, OECD Data, WIPO (World Intellectual Property Organization); plus to understand the geopolitical context, the European Central Bank (ECB), European Finally for add body to the report, Sustainability & Environmental Data: European Environment Agency (EEA) and United Nations SDG Database

**Ethical Considerations:**

* Privacy & Confidentiality: No personal, private, or sensitive user data will be collected or analyzed. All datasets used are publicly available and anonymized.
* Compliance with GDPR & EU Regulations: Since the study involves data from the EU, it will fully comply with the General Data Protection Regulation (GDPR).
* No Harm Principle: The insights and recommendations will focus on promoting innovation and economic resilience without negatively impacting businesses or stakeholders.
* Avoiding Bias & Misrepresentation: It will apply validation techniques to ensure findings are objective and not skewed by political or economic biases.