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Full-time studies

“Sustaining Software Delivery in Crisis Conditions: A Study of Management Strategies in Ukraine's IT Industry”

Master’s thesis written under the supervision of

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Warsaw, 2024

# **Declaration of Authorship**

I, Markiian Lebiak, declare that this thesis titled, “Sustaining Software Delivery in Crisis Conditions: A Study of Management Strategies in Ukraine's IT Industry” and the work presented in it are my own. I confirm that:

* This work was done wholly or mainly while in candidature for research degree at this University.
* Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated.
* Where I have consulted the published work of others, this is always clearly attributed.
* Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work.
* I have acknowledged all main sources of help.
* Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed my- self.

# **Abstract**

The Ukrainian IT industry has faced substantial challenges due to the ongoing military conflict and the global COVID-19 pandemic, necessitating rapid adjustments in management strategies and work modalities. This thesis explores the effectiveness of different management styles—primarily Agile and Waterfall methodologies—in sustaining software delivery within this turbulent context. Through a combination of quantitative data collected from surveys and qualitative interviews with IT managers and team leaders across various Ukrainian IT companies, this study aims to identify which methodologies better support project continuity, team productivity, and timely delivery under crisis conditions.

# **Acknowledgements**

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# **Chapter 1: Introduction**

## **Motivation**

The ongoing conflict in Ukraine has uniquely positioned its IT industry to operate under crisis conditions, providing a compelling case study for crisis management strategies. This thesis aims to explore how Ukrainian IT companies have managed to sustain software delivery during such turbulent times. The motivation for this study stems from several critical observations and gaps in existing literature:

* Economic Importance: The IT sector in Ukraine contributes significantly to the national GDP and is a major employer. Understanding how this sector copes with crises is crucial for economic continuity and recovery.
* Innovative Responses to Crisis: Preliminary observations suggest that Ukrainian IT firms have developed innovative management strategies that could serve as blueprints for other sectors and regions facing similar challenges.
* Lack of Specific Research: While there is extensive research on crisis management in general, there is a notable lack of focused studies that address sustaining software delivery in the face of prolonged and complex crises, particularly in regions with ongoing geopolitical instability.
* Global Relevance: The insights gained from this study could benefit other regions and industries that are vulnerable to crises, providing them with proven strategies to maintain operational stability.

## **1.2 Problem Statement**

In recent years, the global IT industry has faced unprecedented challenges due to the COVID-19 pandemic and geopolitical tensions. Particularly in Ukraine, the IT sector has not only had to navigate the complexities of a global health crisis but also adapt to the severe disruptions caused by ongoing military conflict. These crises have forced a rapid shift in work modalities and required a reevaluation of management styles to sustain software delivery under highly adverse conditions.

The Ukrainian IT industry, known for its robust growth and significant contribution to the global technology market, has been at the forefront of adopting remote work practices. This shift has necessitated the use of varied management strategies to maintain productivity and project delivery timelines. Prominent among these are Agile and Waterfall methodologies, each offering distinct advantages and challenges in a crisis setting. Agile, characterized by its flexibility and iterative process, is purported to better accommodate the uncertainties and rapid changes that crises bring. In contrast, the Waterfall methodology, with its structured and sequential approach, might face challenges in such dynamic conditions but could provide stability and clear direction.

This study seeks to investigate how different management styles, particularly Agile and Waterfall, have impacted software delivery in Ukraine's IT sector during the concurrent crises of war and pandemic. It aims to understand which methodologies have proven more effective in managing teams remotely, ensuring productivity, and meeting delivery deadlines under the constraints imposed by these crises. Furthermore, the research will explore managerial tactics that have been instrumental in adapting to these challenges, such as modifications in communication, team coordination, and project management practices.

The relevance of this study is underscored by the need for empirical data and analytical insights into how IT companies can optimize management strategies to withstand similar future crises. By identifying the most effective practices and methodologies used during this tumultuous period, this thesis will contribute valuable knowledge that can guide IT companies in crisis management planning and implementation. Additionally, the findings could offer broader implications for the global IT industry, particularly in regions susceptible to socio-political instability or health crises.

## **1.3 Goals to Achieve**

Lol

## **1.4 Structure of Thesis**

In addition to the whole research documentation, which can be found on GitHub, the thesis is also structured to maintain consistency of research and problem-solving. It includes such chapters:

In *Chapter 1*, the idea and problem to be solved are described, as well as the motivation of this work.

In *Chapter**2*, there is a full description of background information and methodologies, which came in handy during the research.

# **Chapter 2: Background Information and Related Works**

2.1

Hello

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