Complex project plan of approach

Simon Potocnak 00092651 Michal Jakubowski 00081989
Ivan Karev 00092432 Dezső-Dániel Bartha 00092909
Damyan Dimitrov 00093641

September 5, 2025

Complex project SE (CU75047)

Contents

List of Figures

1 Introduction

2 Background

2.1 Organization

2.1.1 The Launch of a Unique Knowledge Center

Many organizations have long been dedicated to an integrated approach to combating undermining. Each, drawing on its own expertise, possesses valuable knowledge and data. The real strength lies in combining this knowledge and data, which offers opportunities to gain deep, new, and supplementary insights. The Strategic Knowledge Center on Undermining Crime (SKC) was established precisely for this purpose.

The purpose of the SKC is to gather and interpret information and knowledge for a problem-oriented approach to combating undermining by organized crime, in order to prevent social disruption. With this goal, and thanks to its analytical expertise and connecting capacity, the SKC aims to make the Netherlands more aware, safer, and more resilient.

2.1.2 The SKC within J&V: Independent and Policy-Neutral Analyses

The SKC, based in Vlissingen, is part of the Ministry of Justice and Security, with the Directorate-General for Undermining (DGO) as the coordinating client. The SKC produces independent analytical products on the undermining activities of organized crime.

These products are policy-neutral: they do not contain advice or recommendations, nor do they evaluate existing policies. SKC publications are intended for officials involved in strategy and policy development for the integrated approach to combating undermining.

2.2 Products

2.2.1 Ambition and Composition of the SKC

The SKC delivers leading analytical products on the undermining activities of organized crime. It creates distinctive value by:

- providing strategic insights,
- conducting (inter)national research,
- consolidating the knowledge of organizations
- analyzing data on complex issues related to undermining.

The SKC complements other organizations and does not assume their responsibilities or authorities. It leverages its unique position as a public service provider for independent analyses. This enables collaboration with security organizations, knowledge and educational institutions, and partnerships involved in combating undermining.

Key partners include: Clingendael, Insight Crime, Global Initiative, The Hague Centre for Strategic Studies, HZ University of Applied Sciences, University College Roosevelt, and Erasmus University Rotterdam. The SKC continues to seek new partners to expand its network and further enhance the value of its analyses.

Analytical products at the SKC are created by a multidisciplinary team of researchers, analysts, data scientists, strategic advisors, communication and visualization specialists, and liaisons from partner organizations (Public Prosecution Service, Police, Royal Netherlands Marechaussee, Customs, Tax Authorities, and FIOD). To maximize the team's effectiveness, the SKC fosters a progressive, positive, and innovative culture.w

2.2.2 Core and Additional Research

In addition to the DON (National Threat Assessment on Undermining Crime), the SKC conducts other research in the form of international and thematic studies. These studies also serve as input for the core product, the DON.

The first two thematic studies focus on:

1. Youth
2. Criminal Influence through Corruption, Infiltration, and Violence.

The international studies aim to provide an overview of the main developments in organized crime that pose risks to Europe and the Netherlands. These geographic studies together create a picture of the scale of criminal networks and form the international foundation of the DON.

The SKC has already completed and published the *Transatlantic* and *Eastern Europe* international studies. It is currently conducting studies on Europe, Africa, and Southeast Asia. Each geographic study provides a thirty-year retrospective on the development of organized crime, focusing on criminal networks and the flow of goods, finances, and communication/information.

Annual updates of these international studies are based on the monitoring of information, data, and knowledge sources using data science. This approach is exemplified by the first SKC update that has already been published: *A Strategic View on the Dynamics of the International Drug Market.*

2.2.3 SKC Publications

The DON, international studies, and thematic studies are compiled from publicly available sources. The SKC's approach is to bring together current, expert, and reliable insights that contribute to a comprehensive and dynamic understanding of undermining by organized crime.

When preparing the DON:

- no privacy-sensitive data is processed
- operational information such as personal data is excluded
- case examples consist of abstracted information where specific details remain unknown to the SKC.

When requesting information from organizations or partnerships, the SKC assumes that the data may be used for the public threat assessment or related studies, with proper source attribution.

2.3 Existing solutions

3 Problem and goals

This chapter is going to describe problem that the company is facing and why is that so. Chapter will continue with proposition of how this problem can be solved.

3.1 Problem

The company's employees are collecting information from various publicly available documents, which are processed through two routes.

In the first route, metadata and information such as author, publication year, and other details are processed, collected, and stored through internal software. This tool uses large language models to generate insights about the documents, which are then stored in the internal database. However, the tool is still under active development and is not yet fully utilized.

The second route involves the manual intake of documents. In this process, analysts use an Excel spreadsheet to write short subjective summaries of the documents. While the spreadsheet is well organized, the growing number of processed documents makes it increasingly difficult to search for specific phrases and trace them back to the original documents.

According to the project's main stakeholders, navigating complex Excel tables has become time-consuming and error-prone. Therefore, developing a coherent online tool would greatly benefit the organization.

3.2 Project and solution

The project aims to create a reliable solution that abolishes the current system of compiling information through excel sheets.

The main focus will be to create an intuitive application that boasts a comprehensive user interface that aims to streamline the process of compiling information for the analysts and data engineers of the Strategic Knowledge Center of Undermining Crime (SKC).

4 Learning outcomes

4.1 Analysis

The first step in creating a useful tool for the company is to define both functional and non-functional requirements, since they will shape the direction of the project from the very beginning. These requirements will be the outcome of the analysis process specified in this document.

First and foremost, the target audience and key stakeholders will be identified. Without this step, it would be difficult to narrow the focus to a specific group of people, which would make the requirements too broad and their validation much harder. Key stakeholders will mainly be used to validate the gathered requirements because they are the most interested in the project and can influence it the most. That being said, it is expected that stakeholder analysis should be completed in the first two days of Sprint 1.

Once the target audience is known, initial interviews with selected individuals will be conducted. The list of individuals for the interviews will be retrieved by contacting the key stakeholders or the HR department of the company. The aim of these interviews is to gain a better understanding of the bottlenecks and hurdles in the current process that this project is intended to address. The interviews will be structured, meaning that selected candidates will receive a list of questions in advance to ensure that all questions are fully answered. To better evaluate the responses, the interviews will be recorded (with the interviewee's consent). After the initial interviews are analyzed, a list of requirements will be compiled and validated with the key stakeholders of the project. Interviews should be scheduled during the first week of Sprint 1 and conducted on a selected day in the second week. The following day should be reserved for gathering and reviewing the collected information.

While interviews will help identify the most obvious requirements, some may still be missed if interviewees are not fully prepared. To address this, an observation method will also be used, where two team members will observe the process that the product is meant to assist and take notes. Additional requirements identified this way will also be validated with key stakeholders. This should be done in parallel with the interview process to save time, meaning it will mirror the interview schedule.

Since there is an in-house application that has been tested but is not yet fully utilized, interviews with its developers will be conducted to clarify how the new product should integrate with the existing system. The conclusions from these interviews will mainly affect the functional requirements created earlier.

Based on the steps above, a list of functional and non-functional requirements will be created. This list will then be reviewed by the team and categorized according to the estimated size and complexity of each requirement. As a final step, the platform that will host these requirements will be chosen for better organization and progress tracking.

Finally, a paper prototype with wireframes will be created to represent the most important requirements from the requirements list. This paper prototype will serve as the final step of analysis, ensuring that the gathered functional and non-functional requirements are aligned with the client's interests.

4.2 Available solutions

It was mentioned by the SKC clients that an initial proof of concept had been already created toward the solution. Creative liberty has been given in terms of development with the exception being that the product needs to adhere to the current technology stack for

the purpose of efficient integration.

It was discussed that access to the technology stack should be given to current developers of the team, after proper precautions have been taken toward data protection. The aforementioned technology stack includes a Microsoft Azure environment and API's through the programming language Python. Additionally, the product should leverage the Svelte software framework for reasons mentioned at the beginning of this section.

A general consensus was reached within the team in regards to available solutions. The initial idea was to create a node based system for visualizing the information gathered by SKC. The solution's main focus was to streamline data processing and improve visualization of data. Therefore, the proposed solution would enable users to visualize the relations between stacks of information which would in term improve the process of compiling data into the final document that would be received by government officials.

In order to acquire feedback from the clients a design was created in Figma, including a representation of the above mentioned node based system. In addition, the proposed solution included a list of all information contained in the database, coupled with a search functionality for the purpose of finding information quickly and effectively.

The proposed usage pipeline of the solution consisted of listing the readily available processed data and relating metadata on selection, displaying said data in a node, as well as all other nodes that would have some form of connection to the selected data.

4.3 Proposed solution

As mentioned above, the proposed solution involves the creation of a node based visualizer which will help our client's work process by eliminating the complexity of working on multiple fronts with different files and formats by bringing all the information together into one application that summarizes all the data they would need and require.

To make out project a reality, first we will establish a development environment with all the required tools. The tools, frameworks and technology used will be based on the client's requirements, their compatibility with existing software and systems, and the tools' availability due to funding. Setting up this environment will ensure that future tasks such as coding and testing can be carried out efficiently without unnecessary problems.

The code written will be structured, formatted and easy to read, following best practices to ensure maintainability, and transferability for future development. Version control will be handled in GitHub by using the GitFlow branching model. Code quality will be upheld through reviews upon every merge request.

After implementation, testing will be done to verify the reliability and quality of the application. Tests will be performed to evaluate the application's functionality and performance. Each test will produce repeatable results, which will be noted and analyzed to gain insight into the overall quality of our application. The outcomes of these tests will be documented.

The development environment will be considered done when it allows the development team to perform their core tasks such as writing code. Code quality will be assessed based on structure, readability, documentation and its adherence to good practices and project requirements. The effectiveness of testing will be confirmed by the repeatability and accuracy of results along with documented observations of issues identified and resolved during the process.

The environment setup will be done within the initial phase of the project as it is essential for our work. Implementation of our solution and testing will continue throughout the rest of the project. By the end, evidence of success will include a working development environment, documented code, structured and executed tests and their noted results.

4.4 Advice

5 Timeline

References