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FALCON
Fighting Corruption & Organised Crime

Deliverable D3.2
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Abstract: This deliverable outlines the architectural design and methodological approach for the FALCON system to enhance anti-corruption efforts. It details functional and non-functional specifications, employs an agile methodology, and integrates a CI/CD pipeline for continuous improvement and testing. The document covers high-level architecture, communication, authorization, deployment strategies, and emphasizes data security and trustworthy AI principles. Each tool's role and functionality within the FALCON toolkit are described, providing a cohesive development framework.

Executive Summary

The FALCON project, funded by the Horizon Europe Framework Program, aims to develop a global framework to enhance anti-corruption efforts through advanced technology integration. This deliverable, D3.2 "FALCON Framework Architecture", outlines the architectural design and methodological approach to develop the FALCON system. It builds on the fundamental requirements established in D3.1 "Use Cases and Requirements" and lays the foundation for subsequent development phases. The primary objective of this deliverable is to present the detailed architectural framework of the FALCON system, covering functional and non-functional specifications validated by FALCON stakeholders to ensure that they meet the project objectives and user requirements. The deliverable also outlines the implementation process, focusing on the design of the core elements of the toolset and their interconnections, with emphasis on data exchange processes and human-machine interface (HMI) design.

The development of the FALCON framework employs an agile methodology, characterized by its iterative process, flexibility, and responsiveness to changing requirements. This approach facilitates continuous improvement and ensures that development remains aligned with user needs and project objectives. The integration of a continuous integration and delivery (CI/CD) process using GitLab CI/CD further enhances this process, enabling continuous updates and robust testing of all components. The deliverable provides a high-level overview of the FALCON framework, detailing its major components, external interfaces, and platform requirements, including user requirements, functional and non-functional specifications, and sequence diagrams to illustrate interactions and data flows within the system.

An important part of the document is dedicated to communication, authorization, and deployment strategies for the FALCON platform, including a tool interconnection matrix, data exchange models, authentication mechanisms and deployment strategies. The deployment strategy leverages modern infrastructure technologies such as Kubernetes to ensure scalability, security, and robustness. The deliverable also addresses secure data management within the FALCON platform, outlining data management requirements and describing the FALCON Knowledge Base architecture, which integrates several data sources and supports complex analytical tasks.

Incorporating trustworthy AI principles is a key focus of the FALCON project, and the deliverable discusses measures to ensure that AI components are designed and deployed in a secure, reliable, and ethical manner. This commitment to responsible AI use is critical for maintaining the integrity and effectiveness of the FALCON platform. Each tool within the FALCON toolkit is described in detail, including its roles, functionalities, and requirements, providing a granular look at the technological

components that make up the FALCON platform and illustrating how they work together to achieve the project's objectives.