**Project Title:** Enhancing Critical Infrastructure Protection through Security as Code

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**Keywords**: Infrastructure as Code (IaC); DevSecOps; Security as Code; Automation; Critical Infrastructure; Software

**Project Summary:**

Critical infrastructure can be considered the essential infrastructure in the data center in order to keep a business going when outages or attacks occur (Ogie, 2017). Modern infrastructure is created using Infrastructure as Code (IaC) to provide fast, reliable Infrastructure Technology. The process of and security of creating IaC is an emerging field. Security as Code takes this a step further. The creation of security processes using artificial intelligence (Borovits, 2020) and automation (Ankele, 2019) techniques to automate vastly enhances security. If we can automate the addition of security to all aspects of our critical infrastructure we can be more confident in our resources.

Outcomes: In this research a framework for the creation of Infrastructure as Code will be presented with particular emphasis on embedding Security as Code to all aspects of the development process. It is anticipated that the project will result in open source tool for the application of security to the process with the potential to expand with commercial plug-ins to support observability and monitoring.

Application: The framework will be generically applicable with the intention of expanding the uptake to a broad audience. This will help inform future standards with the NSAI and ISO standards bodies. The related tool can then be used to help apply the framework with the potential for plug-ins specific to individual commercial use cases.

**Candidate Qualifications/Requirements:**

The candidate should have achieved a 2.1 degree or higher. Knowledge of infrastructure, system configuration and networking is an advantage. Basic Security knowledge required.