# Research Proposal

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# I  Introduction/Background and Rationale (choose any)

# II  Literature Review

DevOps is an approach aimed at reducing the gap between development and IT operations teams, even when they're spread across different locations. DevOps emphasizes building a collaborative culture and using automation to help team members interact effectively [1]. The main aim is to speed up the delivery of software changes by improving processes and encouraging continuous integration and delivery [2]. Moreover, DevOps focuses on optimizing organizational structures and policies, responding to external pressures, refining release processes, meeting quality demands, and addressing socio-technical challenges [1]. The ultimate goal is to enable quicker and more frequent software deployments while ensuring high quality.

In [1], authors found out that integration of DevOps leads to security improvement, deployment predictability. Moreover, in [3], authors studied success factors by categories and found out that DevOps integration also improves perfomance engineering, build and test automation. In comparison, authors of this article also mentioned that DevOps integration helps companies to enhance software security and sustainability [4][5]. To conclude, DevOps integration is a crucial part of software development process, which helps to improve software security, sustainability, and performance.

Many organizations are inadequately prepared to automate their software delivery processes and IT controls due to various factors, such as being in a transitional phase or demonstrating a cautious approach toward complete automation [4]. Secondly, the complexity and range of skills required for successful DevOps implementation present significant obstacles. Thirdly, ineffective management of communication exacerbates coordination issues between development and operations teams [1]. Security remains a prominent concern, as inadequate management may lead to significant data breaches and service disruptions in DevOps-based applications [6]. Addressing these challenges requires innovative solutions. For example, the effectiveness of DevOps anomaly detection frameworks has been demonstrated in identifying and mitigating issues throughout the DevOps lifecycle [7].

In [8], authors analyzed very low number of paipers, which can lead to misinterpritation of results. In [2], authors offers researches in many areas of DevOps. In [9], authors based their analysis only on public repositories. In [10], authors not sure if DevOps actually was applied in selected cases.

# III    Research Design

We are formulating the hypothesis based on the existing literature and then make an experiment, that is why we have decided to choose deductive research design.

We are going to produce case study on DevOps integration in a specific company. For producing such case study we need to collect data before DevOps integration and after. This will take about one year. After that, we will need to write up the research. This will take about 1 month.

To collect data we will are going to conduct a survey to get opinions of employees. Moreover, we are planning to perform some metrics. We will use non-probability method because of conducting survey among employees of a specific company. Hence, we will use the purposive sampling. To analyze collected data we are going to use qualitative analysis.

# IV    Anticipated Results

# V    Discussion

# References

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