Udapeople- CI/CD Benefits Proposal:

❖ What is the concept of CI/CD?

❖ What are our current pain points?

❖ How we could benefit from Devops principal?

❖ What are the challenges that we will face?

✓ What is the concept of CI/CD?

Continuous Integration:

Continuous integration describes the process of merging developer branches to the main branch several times a day. CI puts an emphasis on test automation and finally generates a high quality, deployable artifact.

Continuous Delivery:

In addition to Continuous Integration, Continuous Delivery makes sure that changes of a software product can be released quickly to customers in an automated way and with high quality any time.

Continuous Deployment:

Continuous Deployment extends Continuous Delivery in such a way that it allows frequent automated deployments. Creating the needed infrastructure, provisioning the infrastructure and provide an automated rollbacks.

✓ What are our current pain points?

We mainly have manual deployments and release that leads to delays of production deployments.

Leads to poor software quality since we don't have time for quality analysis anymore.

Deployments are pretty complex. Only a chosen few experts are able to understand the whole process and tons of hand crafted helper scripts. No smoke test and rollbacks mechanisms.

We get late feedback from the business side which prevents us from creating flexible solutions.

✓ How we could benefit from Devops principal?

🔸 **Problem statement:**
We mainly have manual deployments and release that leads to delays of production deployments.

🔸 **Solution:**
- Implement Continuous Integration: automate compiling, testing, code analysis and artifact storage.
- Automate Infrastructure crating and provisioning.

🔸 **Benefits:**
- Cost reduction due to less human errors and faster deployments.
- Reduce complexity and safe manual troubleshooting time.

🔸 **Problem statement:**
- Leads to poor software quality since we don't have time for quality analysis anymore.

🔸 **Solution:**
- After implementing automatic code analysis process in CI/CD pipeline.

🞣 Benefits:

- Now we are able to make unit tests analysis and code analysis.

🞣 Problem statement:

- Complex deployments and hand crafted automation which often fails.
- Missing smoke tests and rollback mechanisms.

🞣 Solution:

- Automate today's manual deployment steps for smoke tests and rollbacks.
- Add automated infrastructure provisioning.

🞣 Benefits:

- Automated smoke test and rollback will reduce the cost and protect the revenue due to reduced downtimes from deploy-related crashes and fast and automated rebuilding of production ready state.

🞣 Problem statement:

- Late customer feedback.

🞣 Solution:

- Implement Continuous Deployments of changes at any given time.
- Involve customers and business stakeholders already in deployment process.

🞣 Benefits:

- Faster feedback cycles of customer lead to higher customer satisfaction.

✓ What are the challenges that we will face?

- Establishing CI/CD comes with a high amount of initial cost and learning.
- Delivering CI/CD pipelines is not a onetime effort, but requires a constant support and maintenance and improvement.
- Even though there are some challenges, CI/CD will improve business process and dramatically reduce cost on the long run.