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CSD 380 – DevOps
Assignment: The Technology Value Stream
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The Technology Value Stream

Understanding Lead Time, Processing Time, and DevOps Improvements

Defining Lead Time vs. Processing Time

Lead Time: The total time from when a request is made to when it is fulfilled.

Processing Time: The actual time spent actively working on the request.

Key Insight: Process improvement should focus on reducing queue times to optimize lead time.

"Because lead time is what the customer experiences, we typically focus our process improvement attention there instead of on process time." (The DevOps Handbook)

The Common Scenario – Deployment Lead Times of Months

Many organizations experience long lead times due to:

- Tightly coupled, monolithic systems
- Scarce integration test environments
- Long test and production environment lead times
- Manual testing and multiple approval processes

Impact: Heroics required at every stage, leading to delays and inefficiencies.

Quote: "Every value stream starts with ideation and finishes when that idea realizes its intended value in the hands of the customer." (Helen Beal)

Our DevOps Ideal – Deployment Lead Times of Minutes

Key Practices for Faster Deployment:

- Continuous Integration & Continuous Deployment (CI/CD)
- Small, frequent code changes
- Automated testing
- Modular, loosely coupled architecture

Outcome: Faster feedback loops, quick error detection, improved efficiency.

Quote: *"The faster we get ideas into production, the more rapidly we gain the benefits of the new features, and get the feedback to learn and improve our ways of working."* (Martin Fowler)

Understanding Value Streams

Definition: A value stream is the set of activities that deliver a product or service to a customer.
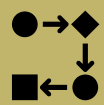
Key Components:

| Steps required from idea to delivery | Focus on customer value | Continuous improvement focus |

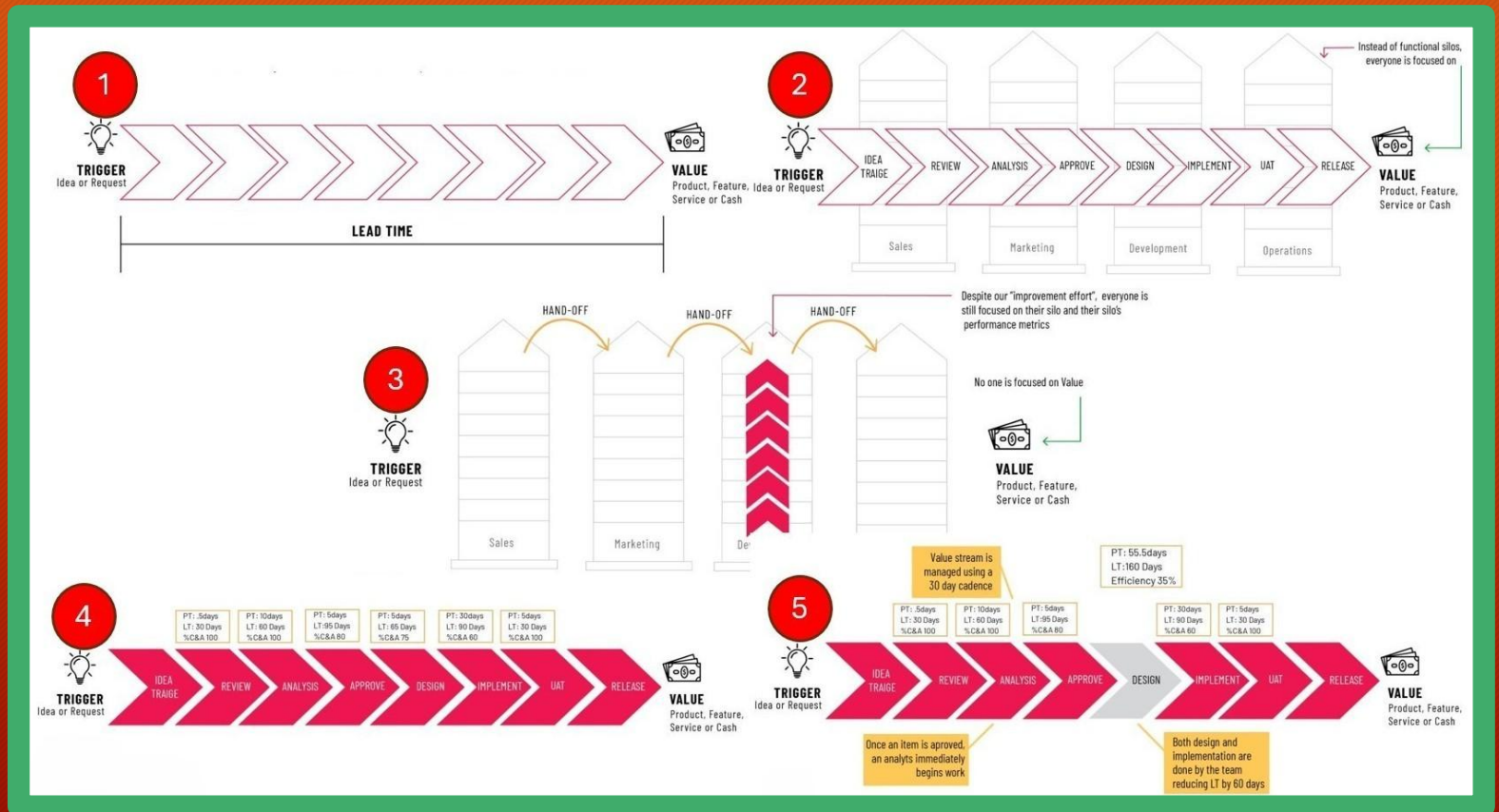**Cycle Time:** Time from the initial idea to a feature being live in production.

Ways to Improve Cycle Time:

Reduce feature size

Increase Slack in workflows

Identify and minimize bottlenecks

Measuring and Optimizing Cycle Time
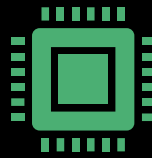
Value Stream Example

Transitioning from traditional value stream (long lead times), to a more optimized DevOps value stream (short lead times)

Conclusion

Long deployment lead times hinder efficiency and innovation.

DevOps practices significantly reduce lead times, improving customer satisfaction.

Optimizing value streams leads to faster delivery and continuous feedback.

References

Sources:

• *Kim, Gene, et al. The DevOps Handbook, Second Edition. IT Revolution Press, 2021.*

• *Beal, H. (2022). What is a Value Stream? VSM Consortium.*
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• *Fowler, M. (2024). Cycle Time. MartinFowler.com.*
https://martinfowler.com/bliki/CycleTime.html

Images:

• *https://www.cprime.com/wp-content/uploads/2021/08/Cprime-WP-Wheres-the-Value-Intro-to-Value-Streams.pdf*

• *https://miro.medium.com/v2/resize:fit:640/format:webp/0*BtfupDdPyjSEjfny.png*

• *https://www.slideserve.com/enov8/basic-devops-principles-and-its-best-practices*

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