

The Technology Value Stream

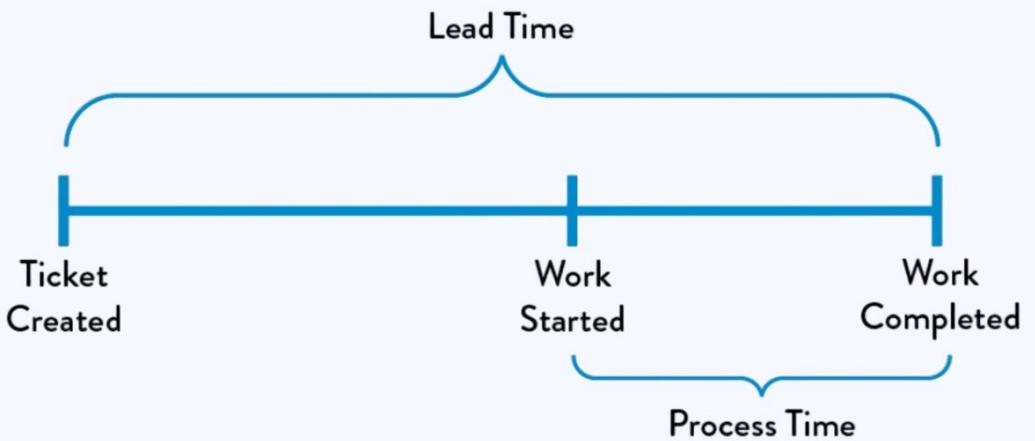
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Module 1.2 Assignment

What is a Value Stream?

A value stream is the sequence of activities necessary to deliver a product, service or experience to a customer, internal or external.
(Gartner, 2024)

Lead Time vs Process Time

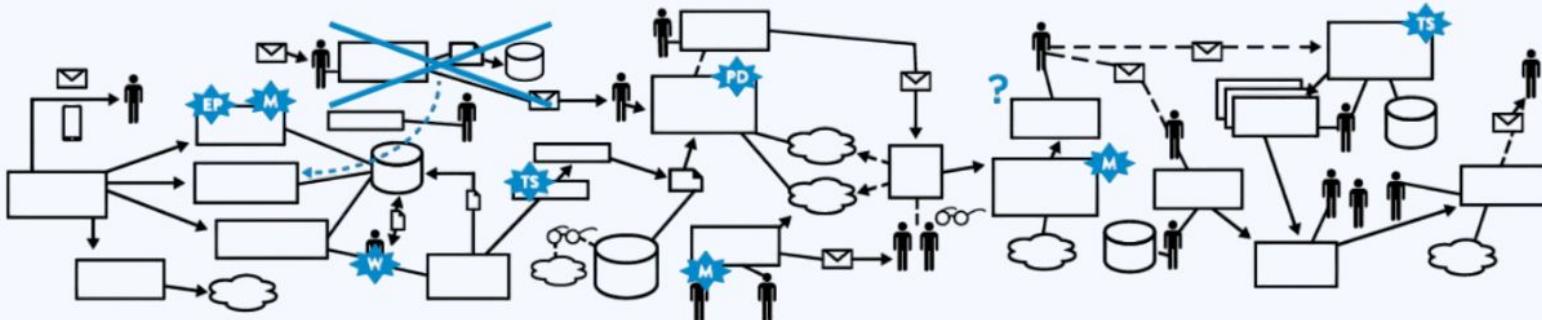
Lead time begins when a request is made by the customer and ends when the request is fulfilled. Process time starts when work begins on the request and ends when the work is completed.



(Source: Kim et. al. *The DevOps Handbook*, 2021.)

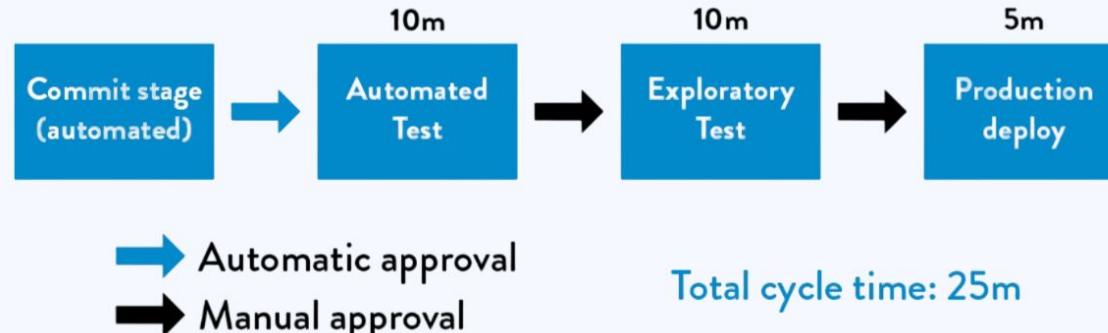
The Common Scenario

Large organizations often have lengthy deployment lead times due to complex systems, manual processes, and limited testing resources. This leads to code conflicts and delays in delivering value to customers.



(Source: Damon Edwards, "DevOps Kaizen," 2015.)

Our DevOps Ideal



(Source: Kim et. al. *The DevOps Handbook*, 2021.)

DevOps aims for rapid feedback, enabling developers to quickly implement, test and deploy their code. This is achieved through frequent code commits, automated testing, and continuous deployment. By breaking down systems into smaller, modular components, teams can work autonomously, reducing the risk of major disruptions. This approach significantly shortens deployment lead times, often to minutes or hours.

Value Stream Metrics



Flow Distribution

The proportion of each flow item within a value stream across time



Flow Velocity

Number of flow items done in a given time



Flow Time

Time elapsed when a flow item enters the value stream to when it is released to the customer



Flow Load

Number of items with flow state as active or waiting



Flow Efficiency

The proportion of flow items are actively worked on to the total time elapsed

(Source: <https://www.blueprintsys.com/blog/value-stream-mapping>)

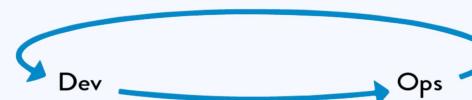
The Three Ways

All DevOps behaviors and patterns are derived from these underpinning principles



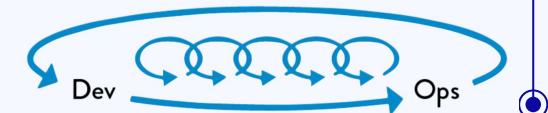
Flow/System Thinking

- Make work visible
- Reduce batch sizes
- Prevent defects from being passed downstream
- Optimize for global goals



Amplify Feedback Loops

- Fast and constant feedback
- Amplify feedback to prevent problems
- Problems found and fixed quickly



Culture of Continual Experimentation and Learning

- Experiment, take risks, learn from failure
- Repetition and practice for mastery
- Ongoing improvement and resilience

(Source: Kim et. al. *The DevOps Handbook*, 2021.)

Sources

- <https://www.gartner.com/en/information-technology/glossary/value-stream>
- Kim, Gene, et al. *The Devops Handbook: How to Create World-Class Agility, Reliability, & Security in Technology Organizations*. IT Revolution Press, 2021.
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- <https://www.blueprintsys.com/blog/value-stream-mapping>
- <https://itrevolution.com/articles/the-three-ways-principles-underpinning-devops/>