

# DevOps basic concepts, culture and practices

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Smart city is an **ecosystem**

- Offers a **variety of services** to citizens
- Ensure **delivering of services produced by different subsystems**
- It has to answer to **the needs of various diverse stakeholders**

Smart city ....  
things to consider



## Five main challenges

- Digital transformation
- Problem domain complexity
- New ways to develop software (DevOps)
- City crisis management (resilience)
- Training needs (or lack of awareness)

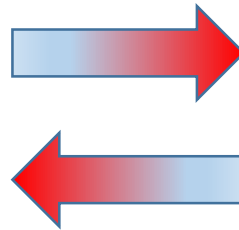
- DevOps is the practice of operations and development engineers participating together in the entire service lifecycle, from design through the development process to production support.
- <https://theagileadmin.com/what-is-devops/>
- DevOps is defined as "a set of practices intended to reduce the time between committing a change to a system and the change being placed into normal production, while ensuring high quality"
- <https://en.wikipedia.org/wiki/DevOps>

# DEVOPS Different Views on Change

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*Inventors focus on change*



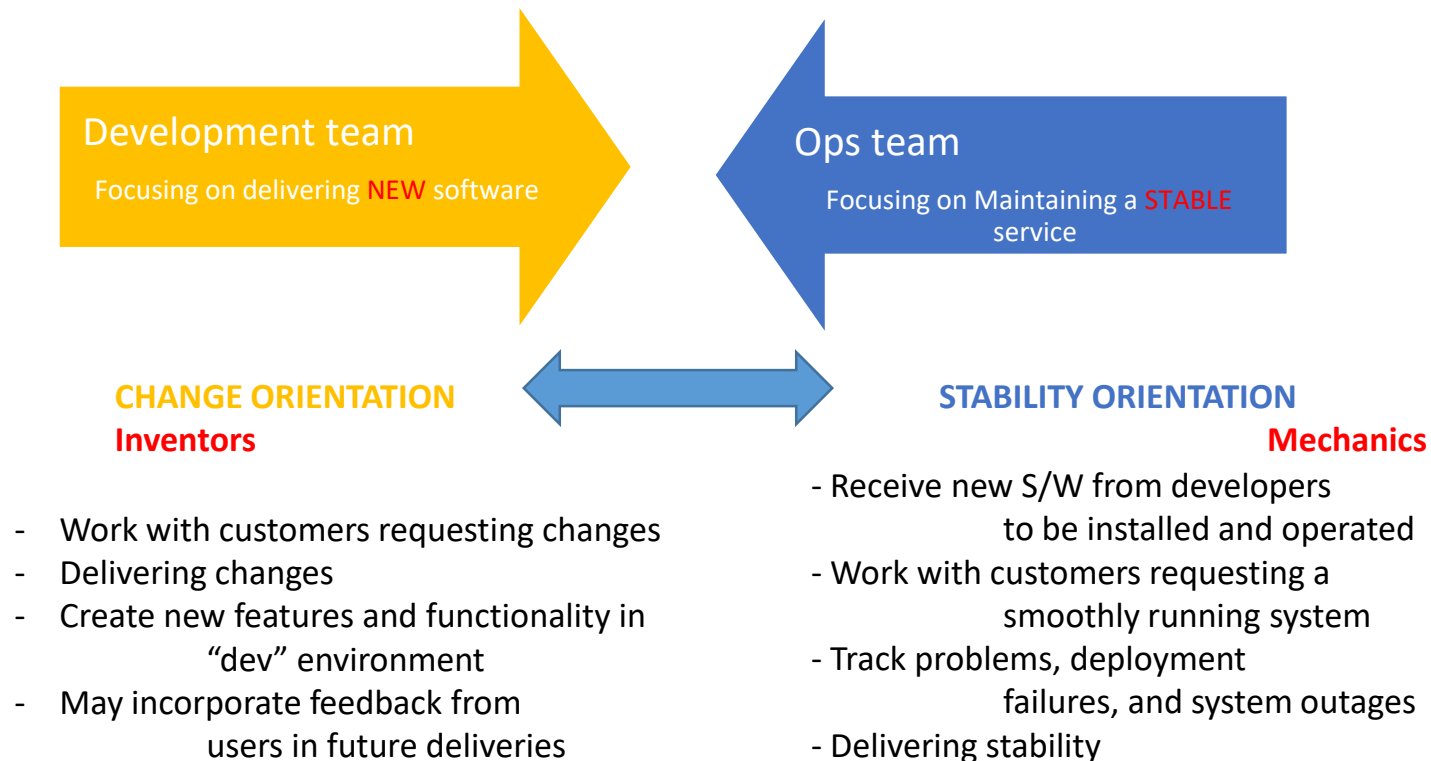
**Mechanics focus on stability**



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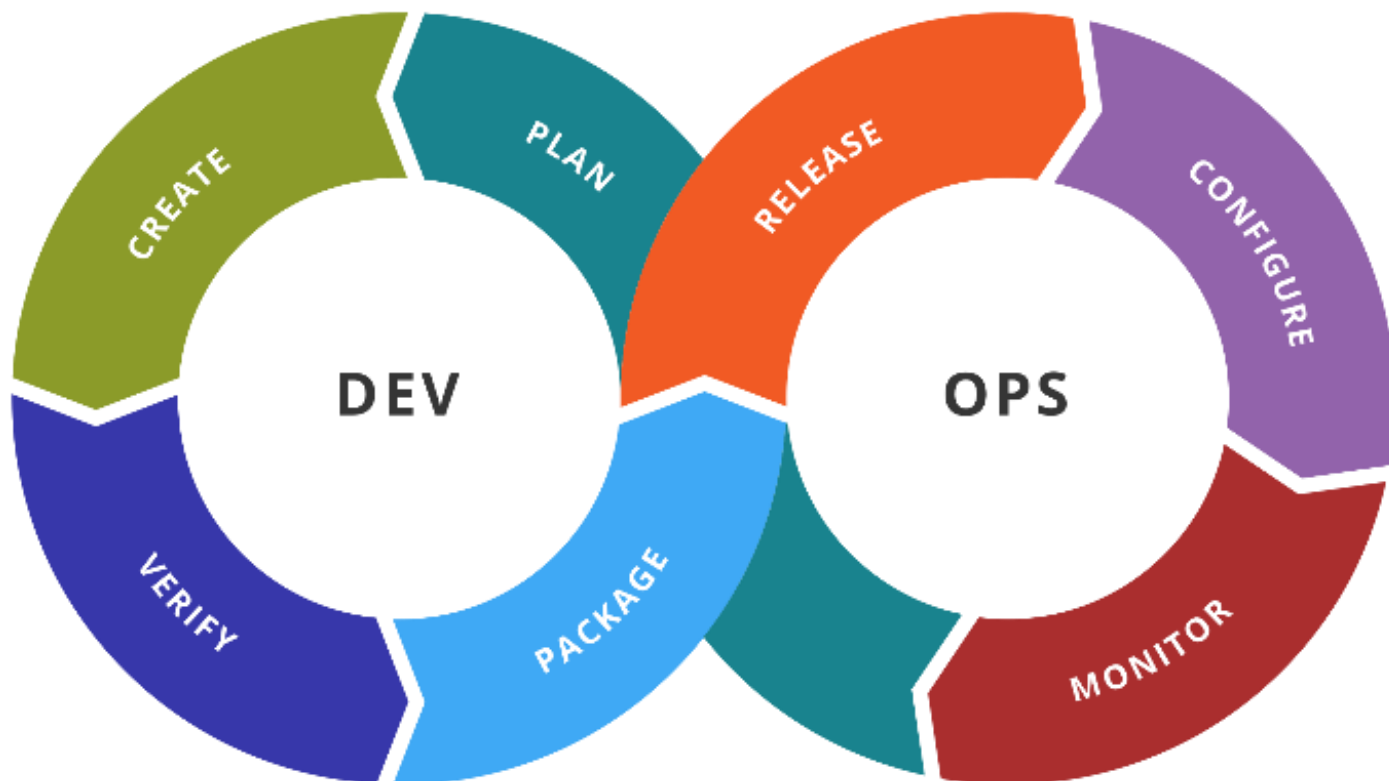
# DEVOPS DevOps brings together

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# DEVOPS DevOps approach

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- According to Puppet Lab DevOps Report (2013) DevOps Delivers :

208 times more  
frequent code  
deployments

106 times faster  
lead time from  
commit to deploy

2604 times faster  
to recover from  
incident

7 times lower  
change failure rat

*Data from DORA State of DevOps 2019 and refer to elite DevOps performers.*  
<https://services.google.com/fh/files/misc/state-of-devops-2019.pdf>

# DEVOPS Continuous Deployment

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COMPANY	DEPLOY FREQUENCY	DEPLOY LEAD TIME	RELIABILITY	CUSTOMER RESPONSIVENESS
Amazon	23,000/day	minutes	high	high
Google	5,500/day	minutes	high	high
Netflix	500/day	minutes	high	high
Facebook	1/day	minutes	high	high
Twitter	3/week	minutes	high	high
Typical enterprise	once every 9 months	months or quarters	low/medium	low/medium

Source: <http://athena.ecs.csus.edu/~buckley/CSc233/DevOpsGuide.pdf>

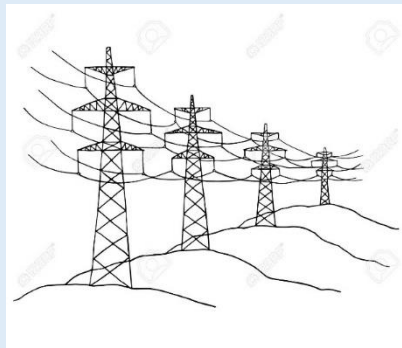


# DEVOPS Continuous delivery of software

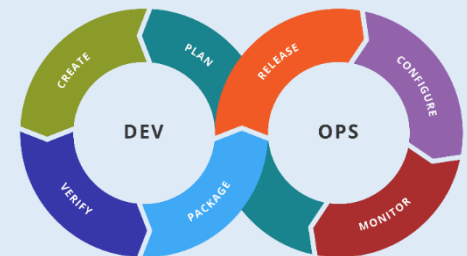
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Roman times



20<sup>th</sup> century



Software enabled society

21<sup>th</sup> century



- The learning objectives of this module are the following:
  - To understand key principles and concepts of DevOps approach.
  - Understand the DevOps process
  - Understand the key DevOps capabilities such as continuous delivery, architectural,
  - The DevOps culture

- Introduction DevOps Foundational Terminology and Concepts
- DevOps Capabilities to drive improvement
- DevOps tools ecosystem

## Thank you for your attention!



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