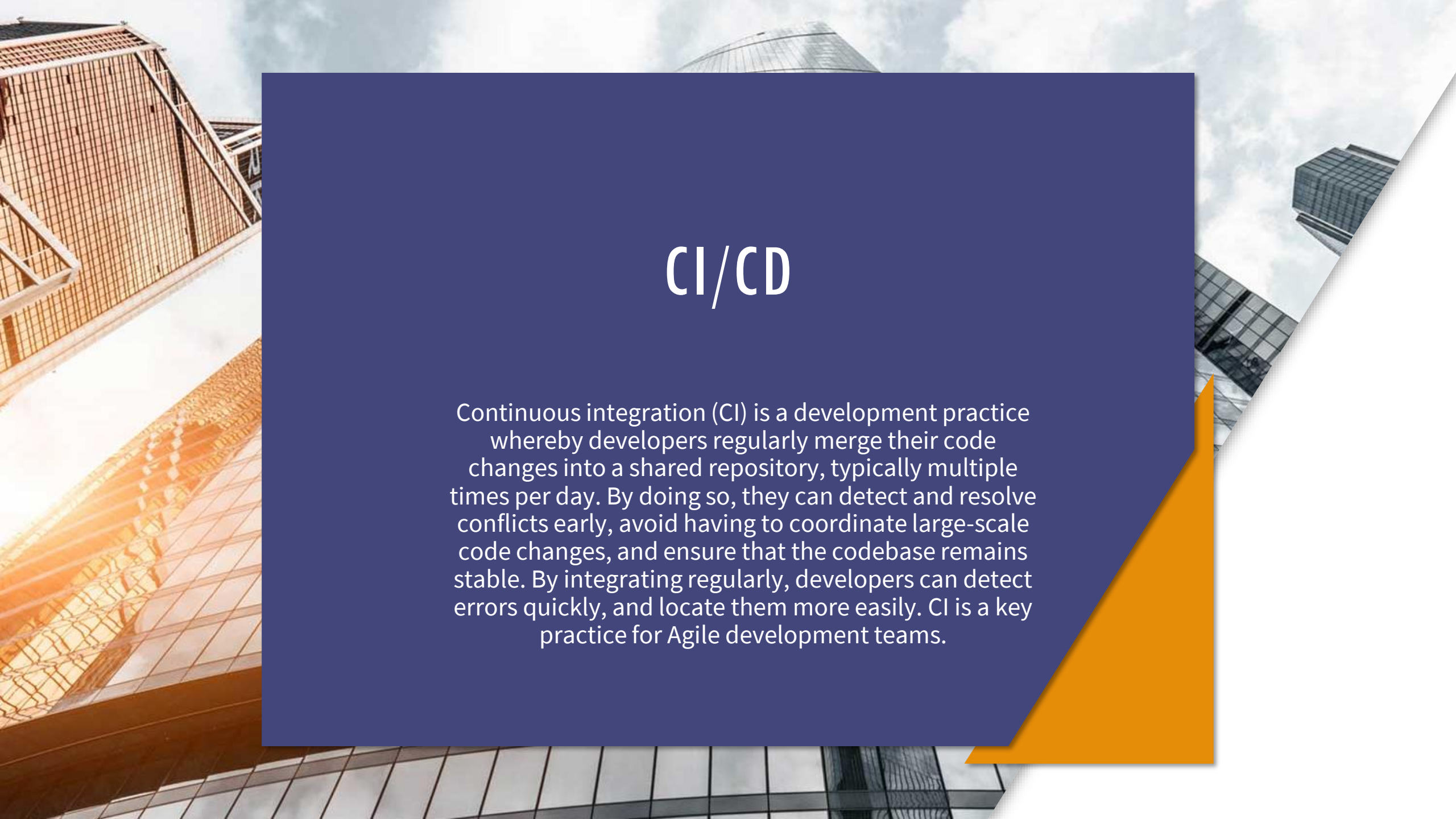


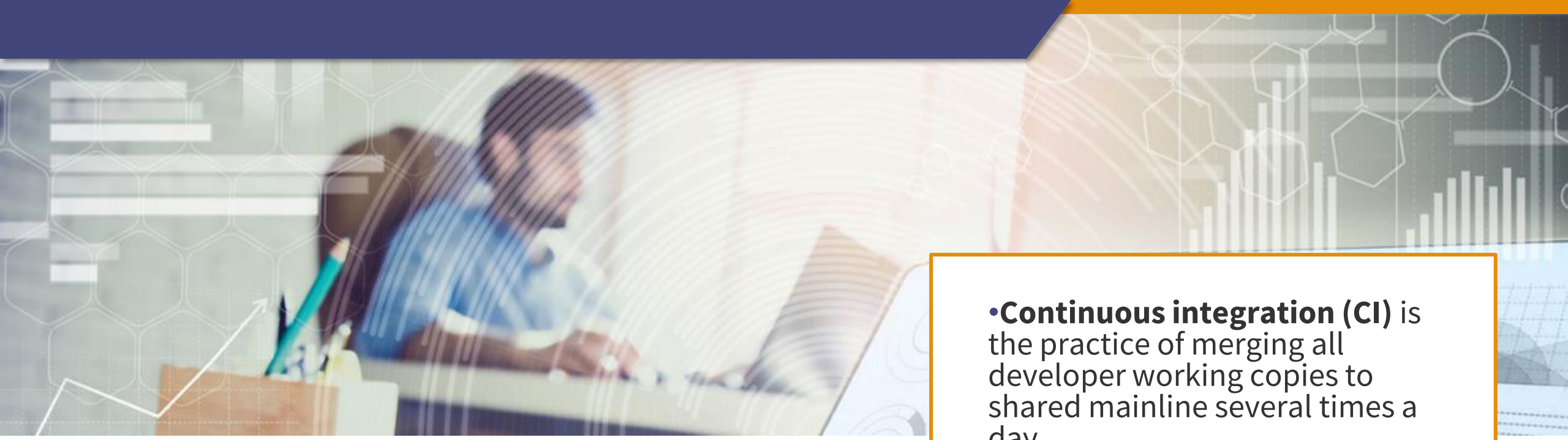
CI/CD

Continuous integration (CI) is a development practice whereby developers regularly merge their code changes into a shared repository, typically multiple times per day. By doing so, they can detect and resolve conflicts early, avoid having to coordinate large-scale code changes, and ensure that the codebase remains stable. By integrating regularly, developers can detect errors quickly, and locate them more easily. CI is a key practice for Agile development teams.

CONTINUOUS INTEGRATION

What are the benefits of continuous integration?

- Continuous integration (CI) makes software development easier, faster, and less risky for developers. By automating builds and tests, developers can make smaller changes and commit them with confidence. Developers get feedback on their code sooner, increasing the overall pace of innovation.
- Organizations that adopt continuous integration have a competitive advantage because of the ability to deploy faster. Organizations that have implemented CI are making revenue on the features they deploy, not waiting for manual code checks.
- Studies done by DevOps Research and Assessment (DORA) have shown that robust DevOps practices lead to improved business outcomes. All of these DORA 4 metrics can be improved by using CI:
- Lead time: Early feedback and build/test automation help decrease the time it takes to go from code committed to code successfully running in production.
- Deployment frequency: Automated tests and builds are a pre-requisite to automated deploy.
- Time to restore service: Automated pipelines enable fixes to be deployed to production faster reducing Mean Time to Resolution (MTTR).
- Change failure rate: Early automated testing greatly reduced the number of defects that make their way out to production.



WHAT IS THE DIFFERENCE BETWEEN CONTINUOUS INTEGRATION (CI) AND CONTINUOUS DELIVERY (CD)?

- **Continuous integration (CI)** is the practice of merging all developer working copies to shared mainline several times a day.
- **Continuous delivery (CD)** is a software development practice where code changes are automatically built, tested, and deployed to production.

THE BUSINESS BENEFITS OF CI/CD

Make users happy

Fewer bugs/errors make it into production, so users have a better experience.

Reduce costs

Automated testing frees up time for developers by reducing manual tasks, and better code quality means fewer errors and less downtime.

Find problems easily

Teams can find problems in code because all code is managed and tested in smaller batches