# CI-CD

**"Benefits and highlights "**

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# 1.Introduction:

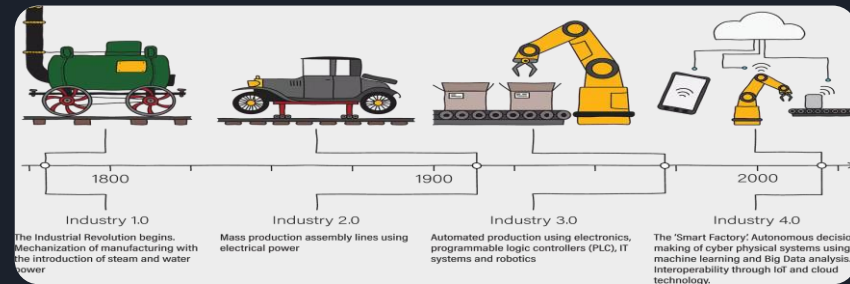**A simple metaphor to demonstrate the Idea**

Manual

→ Making a product **Before** machines and technology in generals:
**1-** requires great effort , very high cost and wasting time, resources,……..
**2-** difficult to get immediate feedback from the customer/client
**3-** apply the needed modifications on our product
**4- difficulty to** cover the market demand.

→ Making a product **After** machines and technology in generals:
**1-** automated process to manufacturing anything needed.
**2-** we can get hundreds or thousands of cutting-edge technology items.
**3-** get reliable products:
   performing many of quality control tests to reach
    a reliable product.
**4-** less cost and effort.
**5-** continuous improvement of the products

Automated



| 1800 | 1900 | 2000 |
| --- | --- | --- |
| Industry 1.0. The Industrial Revolution begins. Mechanization of manufacturing with the introduction of steam and water power | Industry 2.0 Mass production assembly lines using electrical power | Industry 3.0 Automated production using electronics, programmable logic controllers (PLC), IT systems and robotics | Industry 4.0 The 'Smart Factory': Autonomous decision making of cyber physical systems using machine learning and Big Data analysis. Interoperability through IoT and cloud technology. |

# 2.Definitions:

**CI – CI stands for continuous integration – continuous Deployment**

→ **Continuous Integration [ CI ]**
The practice of merging all developers' working copies to a shared mainline several times a day.

→ **Continuous Deployment [ CD ]**
A software engineering approach in which the value is delivered frequently through automated deployments.
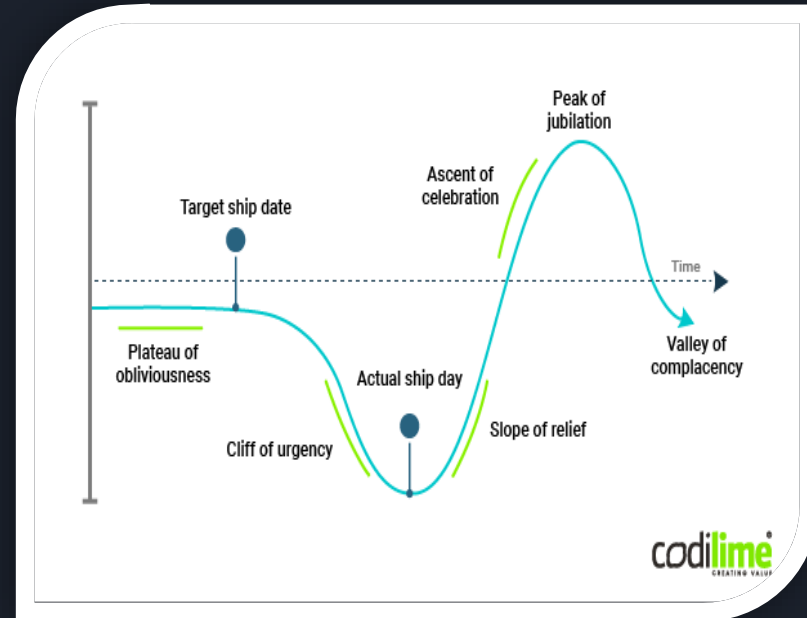
→ **Continuous Delivery**
An engineering practice in which teams produce and release value in short cycles.
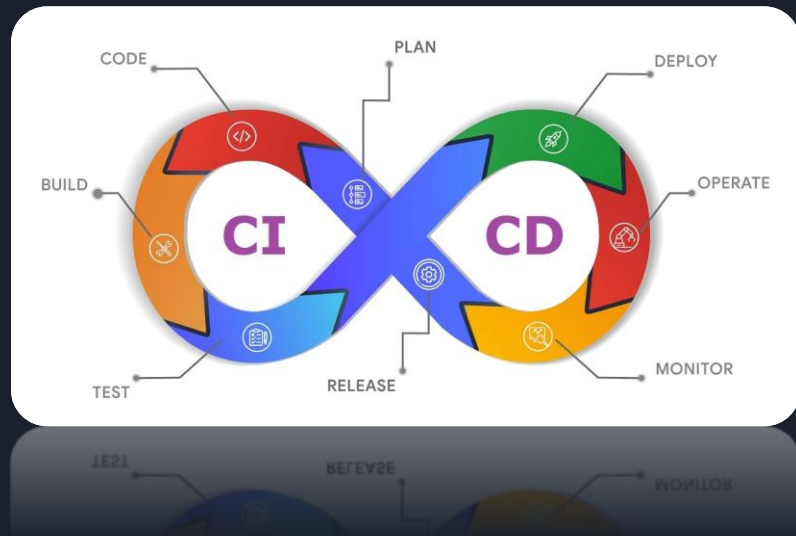
# 3. Problems we are facing:

**1-** **D**elivering software application requires a lot of effort, time.....

**2-** It takes a long time to provide a product to be tested by the client then of course "as usual" he provides many modifications to be considered and here we go again....

**3-** **A**pplying the needed modifications on our product.

**4-** During production we are not able to take immediate actions [roll back or provision resources] for some incidences which is a fatal flaw from security and business perspective.
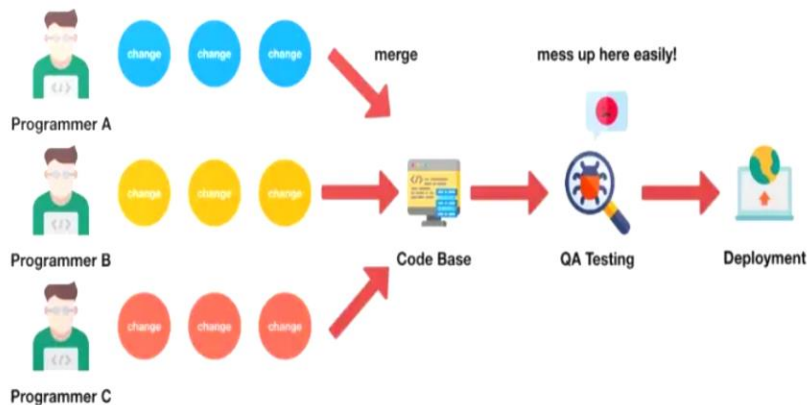
**5-**Implement changes gradually



The emotions cycle of manual delivery

Credits:  https://codilime.com/blog/business-benefits-of-ci-cd/
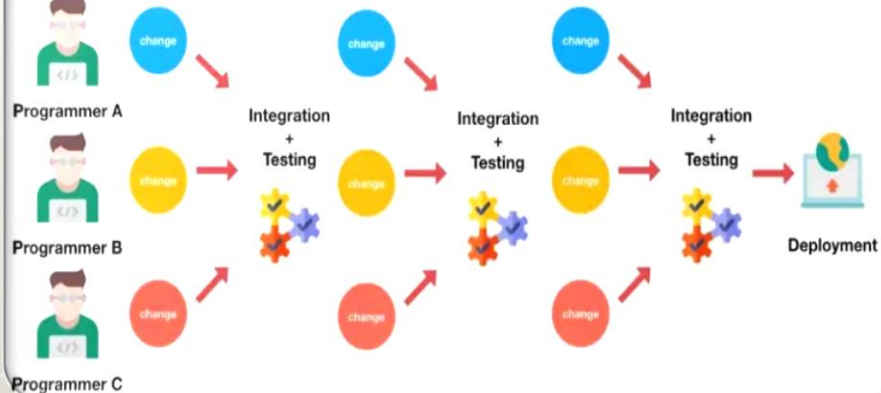
# 4-CI-CD VS Traditional way



Photo credits : https://m.oursky.com/battle-tested-how-we-built-and-master-our-ci-cd-pipeline-2ce99c9b2fa4

# 5 . Benefits of CI-CD to solve these problems:

With this infinity process we can achieve things like

1- Reducing the Cost:
❑ Less developer time on issues from new developer code.
❑ Less infrastructure costs from unused resources.
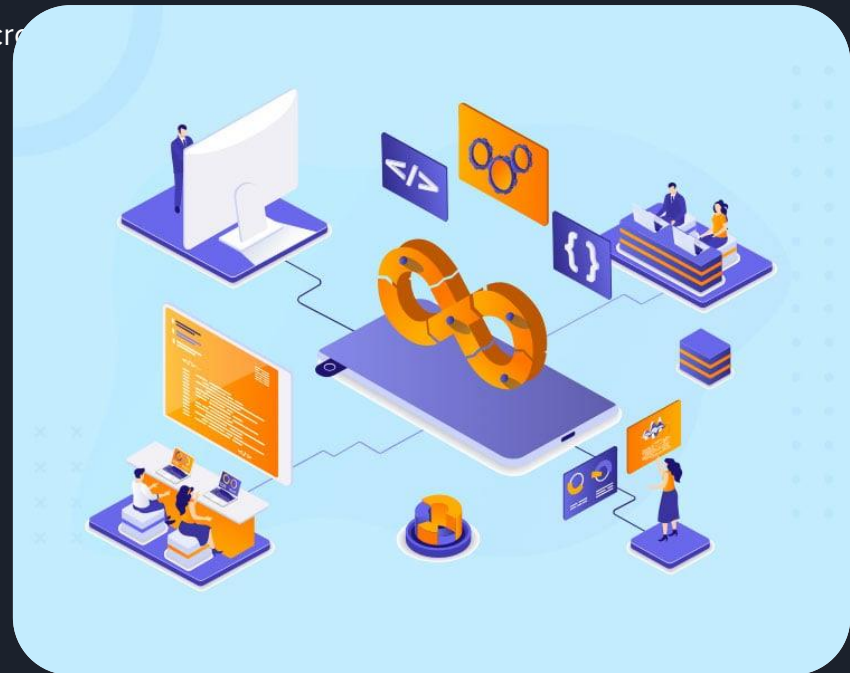❑ Less costs of delivery accomplished by less human intervention acr

2- Increasing the Revenue:
❑ New value-generating features released more quickly
❑ Less time to market

3-Protecting the Revenue:
❑ Quick return to working state
❑ Get feedback continuously
❑ Reduced downtime

4-Avoiding Cost:
❑ Faster deployments
❑ Less bugs in production and less time in testing
❑ Less human error ❑ Prevent costly security holes
❑ Improve visibility across development

# Thank You