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Module 1.3 Assignment

The history of DevOps includes a wide variety of different influences, including Lean manufacturing and the Toyota Production System and Agile software development [1]. Before Agile and DevOps, software development generally involved extremely long lead times of months or years under the waterfall model [2].

The Lean movement in manufacturing is basically the ultimate origin of both Agile and DevOps. The main principle is that the quicker raw materials are converted into finished goods – the shorter the lead time – the better. The other main principle is that small batch sizes are the best way to ensure short lead times.

Lean was pioneered by the Toyota Production System in the 1980s. They created techniques like value stream mapping and Kanban boards. These techniques help ensure that all work is visible and that it can be batched accordingly. These ideas soon expanded to other industries like healthcare, with the help of the Lean Enterprise Institute.

Agile was essentially a way to apply Lean methods to software development. Just like in manufacturing, developers could use shorter batch times to reduce lead times (in this case, from acceptance of work to delivery) and to improve quality. The Agile Manifesto was originally created back in 2001 as a way to codify a much more efficient and lightweight process than the very slow waterfall development. Another Agile principle is small, independent teams.

DevOps is very similar to Agile, but instead of focusing on software development, it focuses on deployment. Agile, on the other hand, encourages very efficient development while being indifferent to inefficient deployment and operations. It is clear that DevOps was a natural extension of Agile just based on the fact that most of the big moments in DevOps history occurred through Agile (e.g. in related forums or at related conferences). For example, possibly the watershed moment in DevOps history was in June 2009 when Paul Hammond and John Allspaw held a lecture at the Velocity Conference entitled “10 Deploys per Day: Dev and Ops Cooperation at Flickr” [3].

Like Agile, DevOps focuses on small teams. But it goes beyond just having short lead times, and extends to code that is *always* “potentially shippable.” This means checking in code at the end of every day or every small task and deploying it quickly and automatically because the testing happens automatically. This extends Agile’s assurance of continuous building, testing, and integration, and extends it to continuous delivery. They now call this the **Continuous Delivery Movement**.

Some current trends in the future of DevOps include security integration (DevSecOps), AI and machine learning, serverless computing, and site reliability engineering (SRE) [2].

[1] G. Kim, J. Humble, P. Debois, J. Willis & N. Forsgren, The DevOps Handbook, Second Edition. IT Revolution, 2021.

[2] D. Odazie & A. Iheanacho, “A Brief History of DevOps and Its Impact on Software Development.” EverythingDevOps, Feb 2023.

[3] M. Modi, “A Brief History of Devops,” KnowledgeHut, Sep 2023. Available: <https://www.knowledgehut.com/blog/devops/history-of-devops>