James Brown III

Module 6.2 Assignment

February 14, 2026

This case study examines how Blackboard Learn addressed growing technical complexity in its legacy monolithic system. Over time, the codebase expanded significantly, with portions dating back to 1997. As the number of lines of code increased, the number of code commits began to decline. This trend showed that developers were finding it more difficult to introduce changes. Build, integration, and testing processes became increasingly slow and error-prone, with feedback sometimes taking 24 to 36 hours. The growing complexity led to longer lead times and reduced productivity, signaling that the existing architecture was limiting performance.

In response, the organization adopted the Strangler Fig pattern in 2012 to gradually modernize the system. Rather than replacing the entire platform at once, the team introduced smaller, independent modules called "Building Blocks." These modules were separated from the monolithic codebase and accessed through fixed APIs. Developers began moving functionality into these new modules, which reduced the size of the main repository while increasing activity in the modular system. This approach allowed teams to work more independently and reduced the need for constant coordination.

The shift to a modular and loosely coupled architecture improved productivity, accelerated feedback cycles, and reduced risk. Problems became localized instead of affecting the entire system. The case also highlights research from DORA and Puppet showing that strong architectural practices are closely linked to high performance and continuous delivery. Overall, the study demonstrates that architecture plays a critical role in team effectiveness, and that modular, decoupled systems enable faster delivery, greater autonomy, and higher quality outcomes.

References:

Grammarly, Inc. (2026). Grammarly [Writing assistance software]. https://www.grammarly.com

Kim, G., Humble, J., Debois, P., & Willis, J. (2021). The DevOps handbook: How to create world-class agility, reliability, & security in technology organizations (2nd ed.). IT Revolution Press.

OpenAI. (2025). ChatGPT (40 mimi). https://chat.openai.com/chat