Benefits to MBS Developer

The Model-Based Standard’s developer is one of the biggest beneficiaries of the solutions identified in this paper. Agile methods and continuous deployment paired with enhanced requirements traceability will bring many benefits to the developer, including:

* Immediate feedback loop to detect and fix issues early
* Increase transparency and visibility to other developers and team members
* Avoid “integration hell”
* Improve quality and testability

The feedback loop is probably the most important aspect to a developer. A NIST study on the Impacts of Inadequate Infrastructure for Software Testing shows that 45% of errors are found in the integration stage of development. A bug introduced in by bad requirements or poor coding can take double the cost to fix in the integration stage and triple the cost in the testing stage. If the bug continues to production, then it can cost up to six times to fix then in the stage it was introduced. (Tassey, Gregory, 2002).

Teams with continuous delivery spend 50-70% less on problem resolution. (Benmoshe, n.d.) Another study of 34,000 open source projects found that teams that use CI, “release twice as often and have developers who are less worried about breaking the build.”(Hilton, Tunnell, Huang, Marinov, & Dig, 2016) A developer will no longer struggle with not having clear and complete requirements – thus reducing rework and wasted time. They can have confidence that the solution they are designing meets the customer's requirements [due to clear traceability to the user story and requirements] and that they have designed a complete solution through the different layers of the data model. By automating the integration and publication processes, the developer will have immediate feedback on the quality of their work and can make adjustments straightaway. The Product Increment Planning event and managed blacklog will provide clear statement of work so that the developer can schedule their time supporting the iterations.

References:

Benmoshe, I. (n.d.). *How to calculate the ROI of Continuous Delivery*. 18.

Hilton, M., Tunnell, T., Huang, K., Marinov, D., & Dig, D. (2016). Usage, costs, and benefits of continuous integration in open-source projects. *Proceedings of the 31st IEEE/ACM International Conference on Automated Software Engineering - ASE 2016*, 426–437. https://doi.org/10.1145/2970276.2970358

Tassey, Gregory. (2002, May). *The Economic Impacts of Inadequate Infrastructure for Software Testing*. NIST.