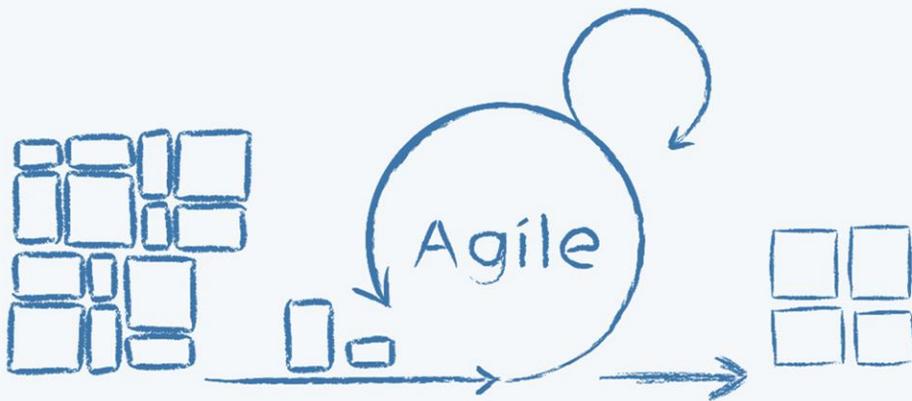


# A New Look at Epic Upgrades

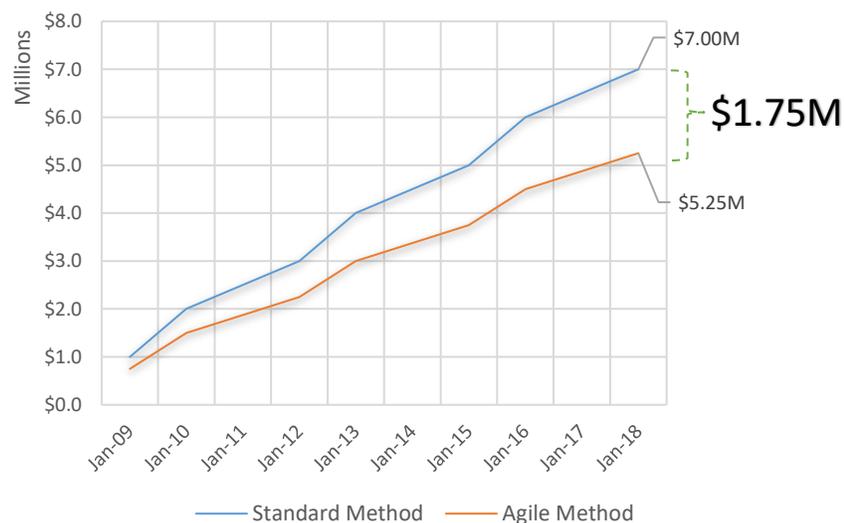
Using Agile principles to improve cost & quality of Epic Maintenance | Winter 2017



Maintaining an Epic system can be a significant drain on a healthcare organization’s resources. A typical upgrade can cost an average hospital \$1M or more in total project costs. Since 2009, there have been 6 of these releases, occurring every 17 months, with the next scheduled for February of 2018. This accounts for \$7M or more in cumulative maintenance cost over the 9-year period.

An alternative approach to the management of these upgrades could reduce this cost by as much as 25% while maintaining or improving the quality of the outcomes, yielding a combined savings of almost \$2M.

8 Yr. Cumulative Upgrade Cost



# Table of Contents

The Problem.....4

Recommendations.....5

Key Performance Indicators.....6

Key Benefits.....7



## Introduction

Healthcare is undergoing drastic change. The rise of the Electronic Health Record (EHR) has had a profound impact on this transformation—improving access, quality and serving as a necessity for the transition to value-based care. Incorporating these enterprise information systems into the operations of the hospital has also given rise to perpetual and increasing amounts of spending on system maintenance at historically unseen amounts.

In our research, we analyzed the impact of one of the leading EHRs, Epic Systems Corporation (Epic), which has seen significant growth rates since its founding in 1979. Per the company’s website, “190 million patients have a current electronic record in Epic.” We analyzed the project methodology and project cost for a typical Epic customer to assess the methods used to manage the maintenance projects and to evaluate impact and opportunity (while the focus of our research was Epic, we saw similar costs and methodologies for other EHR vendors).

Our findings show that most maintenance programs fail to capture the value of the new features available in each release, that organizations are typically managing the cycles through a traditional waterfall approach with an emphasis on the go-live of the features without a realization of the benefit the feature could bring to the health systems outcomes achieved per dollar spent.

We propose that by applying an alternative management methodology to these projects, organizations could realize more business value in less time while also lowering the ongoing cost of these projects by as much as 25%.

---

**Ellis & Adams** is a research and consulting firm with offices in Austin and Nashville. The firm’s mission is to identify and apply technologies that improve public health.



---

*Epic clients could see up to a 25% reduction in labor costs for upgrade projects by utilizing a new method. This new method combines tools from: Agile principles, Lean Six Sigma, and traditional Waterfall methodologies.*



## *Optimization lists are a black hole for IT requests – current methods don't have a mechanism to prioritize the optimization list.*

### **Background**

Epic has historically provided incentives in the “Good Maintenance Program” and recently replaced the program with the “Honor Roll” program. The end goal has not changed: offer an incentive program for organizations to keep up-to-date on current functionality and Epic recommendations. This contributes to an environment where external forces—both from Epic and the government—drive the following behavior: upgrade regularly, take routine Software Updates (SU), and function within a constant process improvement framework. The execution of this poses some operational challenges.

### **The Problem**

One artifact of this landscape is the optimization list, meant to serve as a parking lot for future improvements, serves as more of a graveyard where many items go to die. Business stakeholders are very familiar with this. The look of disappointment in business stakeholders' eyes when their item is categorized as “optimization” speaks for itself. They know the chances of that item being looked at again just dropped significantly—the black hole of IT requests. Optimization has been a major challenge, and multiple task forces have attempted to solve the age-old challenge of getting to the optimization list—basically, doing more with less. Part of the solution is determining effectively how projects need to be

prioritized and realizing the project benefits as promised.

### **Applying an Agile Methodology**

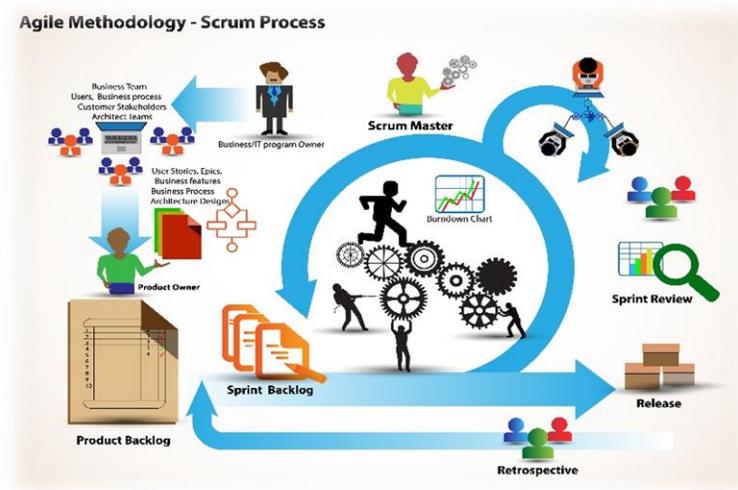
Epic upgrades tend to follow a typical waterfall project management methodology, with defined phases that cascade downward and culminate in the go-live. This methodology has served the industry for many decades and proven very successful. In recent years, an alternative management methodology has emerged which takes an alternative view to this traditional model.

This framework, referred to broadly as Agile, originated with a “manifesto” of core values and principles developed by a group in the software development industry, but has emerged as the mainstay methodology for software development. The methodology emphasizes short, iterative development of features accepting that learning is fundamental to the project and therefore, should be embedded into the life-cycle. This allows for continual refinement and pivot as the team learns and continuously reprioritizes work to align with the business value. Applying these principles to an upgrade presents an opportunity to provide increased overall value of the features available with a new release in less time. To apply this approach, we propose an organization deploy hybrid approach to redefine the Epic upgrade project by incorporating principles of the Agile methodology.

### Recommendation 1 – Leverage NOVA

Epic provides NOVA notes as the documentation for new development. NOVA notes are the documentation used for SU packages and full version upgrades. These notes are categorized as: automatic with upgrade, recommended to take with upgrade, within six months of upgrade, and prior to next upgrade. There are metrics associated with the Stars Program and Honor Roll for what development is implemented along with criteria for completion. NOVA has recently published new updates that allow for tasks to be created from specific NOVA notes. These tasks can be used to document User Stories and Acceptance Criteria, which are linked directly to the NOVA note/Technical documentation. NOVA was not developed as an Agile tool, but can be leveraged to create a Sprint (Project) and is an extremely powerful communication tool across analysts and Super Users.

placed in an iteration). Backlogs and Kanban boards can then be used to decide the value of the features to be included in each sprint.



### Recommendation 2 – Lay foundation, then iterate.

Organizations should focus their upgrade project on just “automatic with upgrade” notes and target a 3.5- to 4-month duration using a typical waterfall methodology. Once all environments are on the same version, the organization should transition into an Agile approach with 2–4-week sprints. Prioritization and communication are key aspects and require operational stakeholder involvement. This means they (Super Users) need direct access to NOVA to provide input on priority and scoping decisions (being

placed in an iteration). Backlogs and Kanban boards can then be used to decide the value of the features to be included in each sprint.

### Recommendation

### 3 – Increase learning through User Acceptance Testing (UAT)

UAT is something that tends to need improvement on Epic upgrade projects. To provide the needed communication and operational involvement, organizations should consider creating a new UAT environment as a copy of Production environment. This environment would function like the Support environment (SUP) and have a regular refresh in line with the iteration. There are many options to provide safeguards to this environment, but the concept of shadow charting has shown positive results within

Anesthesia projects. Low timeouts for inactive use, changing background colors, and even laptops as specific access points could be used as safeguards to ensure documentation is not intended for a production patient. Results and acceptance can be documented by the Super User directly in NOVA and provide the required tracking and communication between IT and Super Users.

### Key Performance Indicators

Agile projects have less documentation and focus more on results. Epic has provided the tracking metric with their Stars Program. Ultimately the end goal is to implement the current tools and up-to-date recommendations. Tracking how good organizations are staying current on the new development is what the program was designed for. The Stars Program should be the main metric for the overall success on Epic upgrade projects. However, there are many additional metrics that should make it onto the project scorecard.

1. Production downtime
2. Help desk ticket volume
3. Caregiver satisfaction
4. IT labor hours by phases (Serves as Key Performance Indicator benchmark for continuous improvement)
5. Completed User Stories



---

*Agile projects have less documentation and focus more on results.*

*The proposed methodology will impact organizations in many areas: cost savings – reduction in operating expenses, improving quality from an IT perspective, increase organizations speed to adopting to change, improving the IT/Business unit relationship*

## Key Benefits

**Reduction in rework (waste).** Longer upgrades typically require SU packages while the project is in flight, which means installing the SU in both the current version and the future version. The proposed method avoids this.

**Reduction in issue resolution and testing time** for ongoing production support. Testing in the current version and the future version takes additional time.

**Reduced impact on caregivers** (you are changing less at once)

**Reduced training requirements.** More than likely because of the amount of change introduced and the roll of the Super User, classroom training for upgrades won't make sense (see Redefining the Roll of the Super User).

**Reduced downtime** for the upgrade. Manual build and build migration are limited because for the upgrade organizations are only taking automatic changes. The proposed method should reduce downtime by 20–40 min.

**Treats each upgrade and SU package the same.** It provides a mechanism to scope in additional build on very short cycles. Prioritization will be top priority and require business stakeholder involvement (see Redefining the Roll of the Super User).

**Brings optimization lists into the story backlog** so they can be prioritized as appropriate.

**Provides the structural support of a project** through all portions of new development (i.e. NOVA notes labeled with “in six months” and “prior to next upgrade”).

**Improves relationship between operations and IT**

## Conclusion

Healthcare systems are increasingly under pressure to improve efficiently and reduce cost. Applying a new approach to how organizations manage track optimization items, incorporate additional user requests into project scope, and provide flexibility needed in a rapidly changing environment, can free essential resources and speed the realization of benefits available through the new features of the health system's Epic system.

Project scoping (sprint iterations) allow for quick changes to priorities, providing resource availability within weeks. The age of the EHR is here and in this rapidly changing environment new processes and tools are needed to maintain competitiveness and efficiency.



## References



1. Willet, D, & Youngblood, J (2016). Success at Seven: High-Quality, Fast Turnaround IT Projects; EHR-Based UT Southwestern EMR's Agile Journey [Powerpoint & Webinar]. Retrieved from <https://userweb.epic.com>
2. Pittman, D., & Darios Tahir, D.(2016). 209,000 doctors hit with meaningful use penalty this year. Retrieved from <http://www.politico.com/tipsheets/morning-ehealth/2016/01/politicos-morning-ehealth-209-000-doctors-hit-with-meaningful-use-penalty-this-year-212129>
3. Siddiqui, N. (2016). Looking at the Numbers: MIPS in 2017 and 2018. Retrieved from <https://www.linkedin.com/pulse/looking-numbers-mips-2017-2018-nadeen-siddiqui-capm-cahims?trk=hp-feed-article-title-like>
4. Wikipedia. (2017, 01 23). Agile software development. Retrieved from Wikipedia: [https://en.wikipedia.org/wiki/Agile\\_software\\_development#The\\_Agile\\_Manifesto](https://en.wikipedia.org/wiki/Agile_software_development#The_Agile_Manifesto)

This white paper is for informational purposes only. To learn more or commission a study at your organization, you can contact an Ellis & Adams associate at [info@ellisandadams.com](mailto:info@ellisandadams.com) or call 512.814.6344.

© Ellis & Adams, Inc. All rights reserved.