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Release Management:
Effective practices for IT delivery

Introduction

Today's health plans face a unique combination
of technology challenges due to their complex IT
environments. These environments serve multiple business
functions, consist of large application portfolios, and have
significant custom- development needs and steep quality
requirements. In order to deploy new functionality in these
complex environments, large-scale updates to multiple
systems, or integrated software releases, are necessary.
Integrated releases are challenging and, if not coordinated
properly, can affect delivery schedules, cost, and quality,
as well as potentially lead to legal and regulatory issues.
Strong release management can improve the quality of
production releases and reduce the risk of schedule and
cost overruns.

This article describes the challenges health plans face
with release management, identifies effective release
management practices to consider, and describes potential
benefits arising from these practices. It also describes how
a major U.S.-based health plan improved the quality of its
IT release delivery by implementing many of these
effective practices.

Software Release Challenges

Many factors contribute to the challenges health plan IT
executives face when planning and executing integrated
software releases. These include:

- **Release complexity.** Releases vary in size and
complexity, but often encompass multiple interrelated
systems with varying degrees of integration and
foundational architecture capabilities. These complex
environments make it challenging to understand,
monitor, and bundle discrete release components (e. g.,
projects or enhancements) in a manageable approach.

- **Planning complications.** Even organizations with
well-defined release management plans can find those
plans completely irrelevant when one or more release
components are delayed. The delay or failure of one
release component can have far-reaching impact
on the release as a whole and can disrupt the entire
organization's release calendar. If release management
plans are not adjusted to reflect these delays or failures,
they can have significant negative effects on the
organization's operations.

- **Prioritization of release components.** Critical
information about release components is often hard
to obtain and assemble, making it very difficult for
executives to assess the true importance or status of the
release components. Organizations find that they have
to make key release decisions, such as milestone changes
and go/no-go decisions, with imperfect information.
Release management functions must clearly understand
the business and IT prioritization of release components,
as well as their true current status, to make
effective decisions.

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- **Decision-making authority.** Successful release management within a health plan IT function requires that the release management organization be empowered to make decisions. When building a release management organization, the size, scope, and positioning of the organization relative to the rest of the IT function needs to be considered. Release management organizations can become ineffective if they do not have visibility and authority over key components of the release. Organizations without the power to manage key activities, such as milestone entrance and exit gating, will likely fail to deliver what is expected and required by the business.

Effective Practices

A well-run release management organization is a cornerstone for delivering on-time, quality releases for business and IT initiatives. The release management organization should include strong, empowered release managers who act as the coordination point between the business and IT. These release managers should operate as program managers that oversee strict processes and controls across all release components. The release management organization should have tools that enable centralized collection of release data, comprehensive code management, and access to release-component-level delivery status across the enterprise.

The effective practices that follow are organized into three categories: people, process and technology. They are based on our experience working with large health plans that implement large-scale integrated releases. Many of these effective practices can be deployed in a release management organization relatively quickly.

People
Empower the release management organization.
At many health plans, the release management organization lacks authority to make decisions or enforce their processes. We believe these capabilities are essential to improving release outcomes.

Release managers should have the appropriate authority to enforce their policies and procedures. Release managers should be empowered to escalate release challenges to business and IT leadership on an as-needed basis. They should be able to enforce release management compliance on IT project managers with project delivery responsibilities.

Include business stakeholders in decision making.
It is imperative to include business stakeholders in the release management decision-making process. Business stakeholders should be aware of all release components, including both the business–facing and technical components. Business stakeholders should be engaged early in the release life cycle and participate in status meetings and mitigation processes where appropriate. They should be aware of the critical risks and issues associated with the release, along with key release component dependencies, to enable them to knowledgeably support release management decision making.

Hire the right team. Release management is complex and can be a high-risk function. As such, the manager with primary responsibility for the release should be a seasoned individual with demonstrated experience managing large projects. This release manager should have relationships across the business and IT organizations that will help expedite resolution of release issues. The size of the release management team needed to successfully deliver a release will depend on the size and complexity of the overall release and may vary by organization.

Empowering the release management organization and working closely with business stakeholders are critical to successful portfolio delivery.

A holistic view of release management as a program is essential to putting the right processes in place.

Process

Manage a release as a program.

The key to improving IT implementation outcomes is to manage a release as a program rather than as just a set of pre-deployment activities. Release management should connect all release components and treat the activities surrounding the implementation of each component as a series of interrelated projects. It should also deploy strict project management practices across all components. This active management of component dependencies within a release is critical and should be pursued across all phases of the implementation.

Standard project management practices should be adopted by the release management organization. Key practices include: development of a detailed work plan with key milestones and dependencies; maintenance of a release risk and issue log; planning that accommodates the needs of both business-facing and technical components; and continuous improvement based on lessons learned.

Create total clarity on release status.

In order to improve decision making, release components should be viewed at a detailed level with transparency around status, risks, issues, and dependencies. Release management should have the tools necessary to develop a detailed assessment of the health of the release. Status reports focused on identifying issues, risks, dependencies and milestones should be shared with leadership on a timely and regular basis.

In addition, occasional audits should be conducted on the high-priority release components. Audits may include interviews with release component team members and deliverable reviews. Findings and recommendations from audits should be communicated to leadership, along with an action plan to address identified issues. Periodic release audits can unearth critical problems early in the process and improve the likelihood of a successful release.

Enforce strict "phase gates."

The release process should include a phase–based gate schedule. Gates are formal checkpoints a project will undergo before it is released to the production environment. Gates should be aligned with significant release component delivery phases such as design, development, test and implementation.

Each phase gate should have clear entrance and exit criteria. Figure 1 on the page that follows provides an example of seven common high-level gates with entrance and exit criteria.

Phase gates force the evaluation of all release components to demonstrate their ability to move onto the next phase of the delivery. If a release component does not meet the entrance/exit criteria of a specific phase, recovery or contingency plans should be invoked to limit the impact on the rest of the release.

Create contingency options.

Contingency planning should be part of any release management project and should focus on both pre-production contingencies as well as post-production contingencies.

Thorough contingency plans should define all likely scenarios that could impact the timeline, budget, and quality of a release. At a minimum, contingency plans should define each scenario, how the scenario may be realized (the triggering event(s)), and the course of action to be taken if the scenario arises. Each contingency plan should be tested to validate the organization's ability to actually execute the contingency or back-out plan.

One scenario organizations should consider in their post go-live contingency planning is what would need to be done if an entire release needed to be backed out. A back-out strategy should include detailed processes to roll back one or more modules of a release and evaluate the ability of each individual module to stand alone. Creation of a back-out strategy can facilitate a quick return to the pre-release environment, thereby preventing a complete business failure due to unanticipated effects of a new release.

Figure 1[1]

Gate	Entrance Criteria	Exit Criteria	Release Management Activity
Gate 1 – Design	• High-level project or release scope is defined	• Dependent projects and delivery functions have acknowledged designs and provided sign-off	• Monitor design approval and facilitate gating
Gate 2 – Development	• Functional design of the release components is documented and approved	• Technical designs are approved; development and unit tests are complete; unit test defects are resolved; and code is deployed to test environment(s)	• Monitor functional and technical design approval • Review unit test results for compliance and facilitate gating
Gate 3 – Functional Test	• Test scenarios and strategy complete	• 100% test case execution • 95% pass rate **Defects:** • Severity 1 – 100% resolved • Severity 2 – 98% resolved • Severity 3 – 90% resolved	• Monitor test planning activities • Review test results for compliance and facilitate gating
Gate 4 – Integration Test	• 50% – 75% pass rate of related functional testing • Test scripts and plan complete	• 100% test case execution • ~99% pass rate **Defects:** • Severity 1 – 100% resolved • Severity 2 – 100% resolved • Severity 3 – 90% resolved • Business acceptance of unresolved Severity 3 defects	• Monitor test planning activities and approvals • Review test results for compliance and facilitate gating
Gate 5 – User Acceptance Testing	• 75% pass rate of integration test • Processes finalized and aligned with integration scenarios	• 100% test case execution • ~99% pass rate • All feedback is captured, recorded and addressed as defects, change requests, or future enhancements requests	• Review test results for compliance and facilitate approval of open unresolved defects • Facilitate gating
Gate 6 – Release & Performance Test	• Code delivered to test environment • 75% pass rate of integration test	• Verification that production volumes and processes are supportable • Analysis of future performance and a clear plan in place to tune necessary system components	• Review test for compliance and facilitate gating
Gate 7 – Production Go/No-Go	• All test phases completed; open defects accepted • Operations acceptance of release	• Business and technology sponsors provide "go" approval	• Facilitate go/no-go decision making

[1] Sample gate schedule is based on Deloitte's experience

The proper use of the right technology can help alleviate inefficiencies over the course of a release.

Provide oversight to the release transition process.
Release management should act as a governing body and provide oversight as a new release is transitioned to operations and production support. This transition should occur early in the process to make sure the long-term support team has the knowledge, tools and capabilities to provide ongoing support of the new release.

In addition to providing oversight before go-live, release management should define measures of success for the release. This includes setting target limits for the maximum number of production issues identified post go-live and comparing release results with past releases. Release management's focus in this area can provide the metrics needed to measure its success and promote process improvement activities.

Technology
Centralize release data.
With centralized, readily available and easily accessible data, release managers can track the health of a release in near real-time and make informed decisions to mitigate risks and issues. Technology enablers, such as requirement management tools, testing/defect management tools, and portfolio management applications, can help to centralize release data.

Implement efficient code and environment management.
Synchronizing the work of multiple teams on an integrated release requires careful code synchronization and effective scheduling of environment resources. Proper code management can decrease the time spent on code synchronization activities. Similarly, effective scheduling of environment resources can enable parallel testing of different code streams and decrease the overall timeframe. Efficient code and environment management can help prevent schedule compression and thus improve release outcomes.

Create extensive application profiles.
Having well-documented application attributes can help project managers and release managers identify application conflicts early in the delivery lifecycle. Applications should be assessed across multiple attributes such as stability, complexity, maturity, class, and business criticality.

Case study
A large national health plan struggled with its large-scale integrated releases. The health plan has a highly integrated IT environment that consists of hundreds of applications supported by a number of IT organizations.

Deploying integrated releases to production was challenging for the health plan due to the following:
- Heavy integration across the IT infrastructure
- Business initiative demand that often outweighed the supply within critical IT organizations (e.g., claims, billing)
- Limited availability of environments to properly test functionality before go-live
- An understaffed release management organization that deployed inconsistent processes late in the release lifecycle

The health plan recognized that improved release management practices would help address some of these challenges. The release management organization implemented a number of improvements with a focus on people and process.

People. The health plan's leadership team realized that the release management team was underfunded and insufficiently linked to business owners. A two-step plan was implemented to address these issues:
- *Maintained adequate staff.* The release management organization used consultants to back-fill existing release managers while simultaneously recruiting and hiring full-time resources. This allowed the team to begin release planning and monitoring very early in the release, while positioning the release management organization to provide full internal support in the future.

Result: The health plan was able to mitigate release risks earlier in the lifecycle, provide visibility on release health, and position the organization to provide ongoing support.

• *Engaged the business.* By putting a release manager in place early, the health plan was able to involve business stakeholders earlier in the decision-making process. Business stakeholders were included in weekly release meetings and targeted reviews that focused on the operational risks posed by the release.

Result: Business stakeholders understood the health and scope of the release and were able to mobilize their resources to proactively address at-risk areas.

Process. The health plan also made four key changes to its release management processes:

• *Managed releases like a program.* Once release managers were engaged in the process, they were able to implement standard project management practices. Releases were carefully planned and release management worked closely with its business counterparts to develop the release schedule. Well-structured work plans were built with a focus on release-related milestones and dependencies that straddled multiple IT organizations. Work plans were reviewed and agreed upon with all stakeholders. Release-related issues and risks were tracked and reviewed with leadership weekly. Release health was assessed a minimum of six months before go-live.

Result: Business leadership was engaged early in the project lifecycle. Issues and risks were proactively addressed and mitigated. All parties clearly understood the release schedule, dependencies, and milestones across all release components.

• *Monitored release status.* A review of the status reporting process identified subjective release reporting and inconsistencies across releases. A new release report template that took advantage of readily available data (e.g., test metrics, release component status reports, etc.) was created. A well-structured audit process was instituted for each release and was initiated six months prior to go-live. Release managers began regularly interviewing project managers and reviewing deliverables. The audit findings and recommendations were documented and presented to leadership. Audit-identified corrective measures were reviewed with project teams in weekly release meetings.

The health plan has experienced a decrease of approximately 50 percent in critical post go-live defects since the deployment of effective release management practices.

Result: An objective release report with consistent metrics across all in-flight releases became available. Critical release issues and risks were identified and mitigated earlier in the release management process.

• *Instituted "phase gating."* Although the release management organization had phase-based gating in place, additional improvements were made in this area. The first and most critical release gate was completed at a minimum of six months before go-live. Entrance and exit criteria for release components were clearly understood and communicated. Gate status as well as any related issues and risks were discussed weekly with leadership. Checkpoints for release components that did not pass a gate were held, and appropriate corrective actions or contingencies were invoked.

Result: At-risk release components were identified earlier in the delivery process. As a result, the release management organization had more time to take corrective action once a release component became at-risk.

• *Improved contingency planning.* While contingency planning was already in place at this health plan, the process was not treated seriously. Contingency plans were cursory and lacked detail, and the implications of invoking contingencies were not fully understood. As with the other process improvements, the health plan began contingency planning earlier. Programs and projects were required to clearly communicate their back-out plans and document their abilities to hold the rest of the release harmless if invoked. Finally, contingency plans became part of weekly discussions with leadership.

Result: Detailed contingency plans were developed and stakeholders were informed about how to invoke a contingency earlier in the process. Leadership and stakeholders gained confidence that a single release component's impact on the entire release could be limited.

Timing & Results

The health plan was able to implement these changes in less than a year with a small investment. The return on investment was realized, and included: increased reliability of release components; better coverage during the test phase; more components released on time; and approximately a 50 percent decline in critical post go-live defects.

With an increase in the number of release managers and adherence to a standard process that now incorporates the effective practices outlined above, the health plan has seen an improvement in its release deployments to production. Business stakeholders have improved confidence in the release management process and in the release management organization's delivery capabilities. Furthermore, these efforts have improved the morale of IT staff.

The health plan continues to invest in its release management organization, as well as in a number of other strategic disciplines within IT. This ongoing investment continues to increase the IT function's output and strengthen the health plan's position in a highly competitive market.

Conclusion

Release management is an essential, high-visibility component of a health plan's IT organization. When the release management organization is empowered to make decisions and follows clear, well-defined processes, it can greatly improve delivery results. Implementing and sustaining release management-focused activities across people, process, and technology and managing a large integrated release like a program can dramatically improve release outcomes. This can be seen in improved performance across multiple dimensions, including quality, timeliness, and cost. When implemented and sized appropriately, release management can improve delivery results and build better business and customer relations with a relatively small investment. Release management should be a cornerstone of every health plan's IT strategy.

References

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• From Development to Production: Integrating Change, Configuration, and Release, Kris Brittain, Ronni J. Colville, Jim Duggan, March 3, 2009.

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