BEST PRACTICES WHITE PAPER

Making Change Stick

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Version 1, January 2010

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From increased quality to reduced time-to-market, the reasons organizations seek to make changes to their processes and practices are numerous. Many organizations succeed in making some changes, some succeed in making significant change, and some fail outright. This white paper outlines a number of keys that can help organizations to more successfully introduce and infuse change.

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SOFTWARE DEVELOPMENT BEST PRACTICES

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Establish a Clear Vision

Establishing a clear vision for why the change is occurring, especially tying it to a specific business objective, is very important for successful change to occur.

A good vision provides guidance about both what the change will accomplish and what it is not meant to accomplish. The vision can be either qualitative or quantitative; the specifics of that are less important than how well the vision can motivate and guide individuals during the change effort. It is essential that the vision be clear, concise, easy to understand, and compelling.

Some examples of vision statements for process improvement efforts include

- Deploy our Agile methodology throughout the entire organization by the end of 2009.
- Reduce customer reported defects by 10% to improve our customer retention.
- Reduce our build time by 50%.

Without a clear vision for why the change is occurring and what the change will accomplish, it is difficult to obtain buy-in and commitment throughout the organization.

Obtain Executive Sponsorship

Many organizations have been successful at grassroots changes within individual teams based on what specific people in the organization are interested in trying out, fixing, or changing. Few are able to introduce organizational-wide change without strong executive sponsorship.

Process improvement efforts require time and resources from within the organization. They often involve an investment in individual and team skills. They always require an investment in time as people adopt the new practices or approach.

Before beginning any change initiative, it is critical to obtain executive sponsorship. A key to success is to understand the interests and goals of the organization's leadership team and show them how the change will help them achieve their goals.

Invest Sufficient Time and Place Sufficient Focus on the Change Effort

When beginning a change, be sure not to underestimate the effort and time that will be necessary to make it successful. People need to understand why the change is happening, how it will impact them, and when they can expect the change to occur. They may have concerns about their ability to work effectively as the change occurs. There may be resistance because people are often concerned when a change affects how they work and/or how they are rewarded. It is important to spend some time planning before beginning a change initiative.

Some of the important aspects to consider during the early planning phase include the following:

- **Charter the effort.** In Construx's experience, one key to success is to explicitly charter both the process improvement effort and the teams that will oversee the improvement activities. Chartering helps ensure that everyone in the organization understands the business case, objectives, and constraints for the improvement effort. One important element of a process improvement charter is a description of the resources (staffing, budgets, etc.) that have been allocated to the process improvement effort. This description should include the names of individuals participating in the effort and details about their availability for the process improvement effort.
- **Plan for the change.** It is useful to plan and manage the change effort as a project. The project management approach should either mirror the current project planning approach or, if that is changing, be the first one to use the new approach. For example, an organization moving to a more incremental software development approach could use rolling wave planning in its process improvement effort. As part of the planning, it is typically useful to refine the vision into a set of specific goals including timeframes and measures.
- **Determine how communication will occur.** Regardless of the oversight approach used, one important aspect of change management is communication. It is important to establish a (formal or informal) communication plan that outlines when communication will occur, defines how the messages will be delivered, and identifies people responsible for communicating the message. Change management requires a significant amount of communication and messaging to be successful. The communication should occur frequently so that people understand what is occurring and when the change is likely to impact them.

Once the change effort is underway, the organization should continue to manage the change improvement plan and to modify it as needed to ensure the desired outcomes are occurring.

Focus on High-Value Changes

Change is more likely to take hold when it is useful to the organization and the people doing the work. Once the vision is understood and specific goals have been identified, select changes that are of high value and, if possible, require a relatively low amount of effort to implement. It is often useful to examine the organization to identify things that are impacting its ability to achieve the desired goals and then target improvements that help it achieve them.

In some organizations, it is best to identify a few small, high-value changes that can begin the process improvement effort. Having an impact, even a small one, early on can be a great way to build momentum.

Consider the Culture of the Organization

All organizations have a culture. There are a set of beliefs, attitudes, and behaviors that are fundamental to an organization. Although some change efforts include an effort to change the underlying culture itself, many efforts involve making a change within the culture. The changes may slightly influence or shift the culture, but they do not result in fundamental changes to the underlying culture. Even when the change only influences the culture, the culture of the organization should be kept in mind when making changes. Some keys to success include the following:

- **Improve what the organization is good at.** All organizations have strengths and weaknesses. Some cultures are excellent at customer relations, while others excel at product innovation. In Construx's experience, process improvement efforts are more successful when they focus on improving what the organization is good at rather than removing weaknesses. Organizations should seek to become excellent at their strongest pursuits and simply reduce the risk exposure of their major weaknesses. Trying to focus on process improvement for the biggest weaknesses is harder and generally less valuable than focusing on improving the strengths.
- **Map the change model to the organization's culture.** Some organizations' cultures support revolutionary ("Big Bang") change, while others needs more incremental change. When starting a change effort, be sure to understand which change model is the best fit for the culture. For organizational-wide process improvement, senior management support is needed to successfully execute either model.
- **Align the changes with cultural values.** Whenever possible, the changes being made should align with the values of the culture. For example, introducing a large, formal, structured process into a culture that values individual risk taking, innovation, and freedom is highly likely to fail. In this culture, changes that enable individual productivity and decision making are more likely to be well received. Any change effort should start by understanding the current culture and then aligning the new processes, practices, or approaches so that they support those values.

Most organizations have some aspects that are fundamental to their culture and others that are not as deeply ingrained or embedded. A process change that impacts core aspects of culture is typically harder to achieve, takes longer to take hold in an organization, and is more likely to fail. When beginning a process improvement effort, it is often effective to align the change to the beliefs and values of the organization rather than trying to radically change the organization's culture.

Create a Right-Size Process

Most organizations undertake a mix of project types within their overall portfolio. There is often a wide variety of projects, including differences in project complexity, the clarity and stability of the preliminary requirements, total project duration, staff levels and profiles, and geographic distribution. Additionally, many organizations want to mix Agile and more traditional approaches depending on the unique goals, needs, and constraints of each project.

More often than not, one size does not fit the needs of all the projects in an organization. Practices suited for large projects can decrease productivity when applied to small projects. Practices suited for small projects don't provide the structure and visibility needed when used on larger projects. Processes should ensure visibility, predictability, and efficiency without unnecessary overhead.

When introducing a new process, be sure to understand the variations in the organization and ensure the specific techniques, practices, required deliverables, and so on can be tailored to the needs of each type of project commonly occurring in the organization.

Address and Benefit from the "Not Invented Here" Syndrome

Some process improvement efforts seek to bring in a completely new process and approach to software development. At times, this is necessary because the organization needs to radically change how it does business to achieve its business objectives. However, more often than not, implementing a completely new approach is not necessary to achieve the goals.

In Construx's experience, most organizations have some existing practices and processes that are used on projects. These can range from undocumented practices that vary widely from project team to project team to well-defined and documented process guidance that is already in regular use. In either case, it is typically easier and more effective to build upon existing practices than to try and implement an entirely new process.

Leveraging the existing practices and processes that have been refined and proven in the organization can help address the "not invented here" issue that often arises. The "not invented here" syndrome is the belief that unless it has been built by the organization itself it can't possibility meet the organization's needs because of the uniqueness of the organization.

Many organizations find that an “off-the-shelf” software process is not a perfect fit for the needs of the organization and the process improvement objectives. But that does not mean only unique, company-specific solutions should be used. Instead, it is useful to find a balance. The organization can look at its current practices to find elements it can use while actively investigating new and time-tested software engineering practices and processes.

Harvesting the existing practices takes advantage of the investments already made by the organization and promotes buy-in as a new process is deployed. Early in the process improvement effort, look at the practices and processes that are currently in use within the organization to find elements that can fit within the new methodology, approach, or process that is being established. It is uncommon to find a complete set of processes that can be adopted throughout the organization. Instead, it is best to keep the elements that work today, do work to evolve the ones that are reasonable and just need to be refined or expanded, and bring in new elements as necessary to achieve the improvement goals.

In turn, identifying new candidate best-practices that can be introduced to the organization increases the likelihood that the organization can see orders of magnitude improvement. As these new practices and processes are introduced, the organization should seek to obtain input from the practitioners to ensure that the new practices and processes are refined to fit the needs of the organization.

Avoid the “This Too Shall Pass” Attitude

Some organizations have made multiple attempts to improve their software processes only to have those efforts result in limited or no change. Even in organizations where this has not occurred, staff members might have experienced it when working at their previous companies. It is important to determine whether this is an issue in the organization; if it is, active steps need to be taken to address and manage the fallout from those negative experiences. Some aspects to consider include

- **Link the changes to something meaningful to the staff.** Because most software engineers want to be productive and efficient, focusing or linking the changes so that they address concerns and pain points that people are really experiencing is an excellent way to address this. By linking the change to items that are impacting employees’ day-to-day work and their ability to be productive, the reasons why the change is occurring and what the team will gain from it become clear.
- **Build upon previous change efforts.** Typically, all change efforts result in some level of change in the organization. When starting another effort, determine what was put in place during the last effort and, if possible, build upon it. In many cases, information about the amount of change that occurred has not been well disseminated throughout the organization and people are often surprised to learn how much change actually occurred. Communicating the changes that did occur can increase the momentum of and support for a new change effort.

- **Align the reward and recognition system.** Because staff will do what they are rewarded for, it is important to understand what the organization currently rewards and, if necessary, change the system so that it aligns with the new objectives. For example, consider a culture that places a high emphasis on delivering projects or features on time. If an organization wants to improve the product quality of its delivered systems, it needs to include rewards for delivering at the desired quality level. If the shift is to be significant, the organization needs to ensure that the reward for quality delivery is higher than the reward for on-time delivery.

Evade the "Ivory Tower" Process

The term "ivory tower" is often used to describe a situation in which intellectuals engage in pursuits that are disconnected from the practical concerns of everyday life. In software practice improvement efforts, this situation occurs when the process is defined by people who are no longer involved in the day-to-day development activities. In Construx's experience, processes that are defined without the input of technical leads and key individual contributors have a higher risk of failure.

It is typically more difficult to get traction with a process improvement effort if the processes are defined by people who do not have to use them. One cause of this is the increased difficulty in getting buy-in throughout the organization when many members affected by the new process have not had input into creating it. Another factor that impedes a process improvement effort is that processes too often are not a good fit because they are defined without sufficient knowledge of how the work within the process is currently done, what challenges people face, and what people need to do the work more effectively and efficiently.

Without the input of the people doing the work, it is hard to be sure that a defined process matches the way the organization is currently doing work and it wants to do it. A new process often imposes unnecessary obstacles, or it focuses too heavily on the specific documents and deliverables that must be created rather than on the work that needs to be done to move the project forward. At times, it can be helpful to educate the existing staff and/or bring in external expertise to ensure the organization has exposure to various ways to perform the work to help it think beyond how the work is done today.

When beginning any process improvement effort, it is critical to include individual contributors and team leads from each function/discipline in the organization. This should include people from each major geographical region of the organization. The individuals selected should be well respected in the organization and interested in improving software engineering practices. Including people who are involved in the day-to-day development activities generally results in a better process that is easier to deploy throughout the organization.

Provide the Staff with All Necessary Guidance and Support

Process documentation alone is not enough to ensure that people throughout the organization can apply the process effectively. Team members must understand and appreciate the desired process change, they need to be aware of the contents of and objectives for any new deliverables, and they need the skills and knowledge necessary to execute the new process. They need to know how to tailor the process to meet the needs of their specific projects and systems.

When deploying a new process, provide the staff with all the necessary guidance and support to use it effectively. This can include items such as the following:

- **Process Training.** Training staff how to use the new process provides a shared vocabulary for and understanding of the process itself. Training can include a discussion of the process flow, the new or revised deliverables and their contents, new or revised roles that participate in the process, and the milestones or decision points. As part of this training, it is often useful to provide examples or scenarios of how people will perform their day-to-day work using the new process.
- **Software Engineering Skills Development.** When introducing new processes, skills gaps within the teams might need to be addressed. For example, when deploying a new requirements process that includes new practices such as capturing requirements with user stories, using story points to perform estimates, and validating the software using acceptance test cases, it may be necessary to raise the teams' knowledge of and skill in applying test practices. This skills development can occur through having staff read related books, conducting software engineering training, and organizing knowledge-sharing sessions such as brown-bag lunches.
- **Coaching.** At times, staff might find it difficult to apply classroom-learned skills on projects without a coach or mentor to assist them. Assigning an internal or external coach to a team during the transition is a very effective way of helping the team move quickly through the learning curve.
- **Supporting Materials.** Process overviews, templates, samples of high-quality deliverables, and process-tailoring guidelines are useful ways of helping people understand how to apply the process and what the outcome of the process should look like.

As any new process is deployed, staff should be provided with any necessary supporting materials, training, and coaching. This additional support helps the organization diffuse the new process throughout the organization and increases the likelihood of a successful adoption.

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About Construx

Construx Software is the market leader in software development best practices training and consulting. Construx was founded in 1996 by Steve McConnell, respected author and thought leader on software development best practices. Steve's books *Code Complete*, *Rapid Development*, and other titles are some of the most accessible books on software development with more than a million copies in print in 20 languages. Steve's passion for advancing the art and science of software engineering is shared by Construx's team of seasoned consultants. Their depth of knowledge and expertise has helped hundreds of companies solve their software challenges by identifying and adopting practices that have been proven to produce high quality software—faster, and with greater predict-ability. For more information about Construx's support for software development best practices, contact us at consulting@construx.com, or call us at +1(866) 296-6300.

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