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TECHNICAL AGILITY

HOW ENTERPRISE SOFTWARE SYSTEMS SUPPORT OR INHIBIT AGILITY



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EXECUTIVE SUMMARY

This whitepaper explains how legacy enterprise software systems inhibit Agile adoption efforts, introduces the concept of Technical Agility, as well as explains how organizations can benefit from assessing and improving their Technical Agility.

Slick Rabbit, LLC provides specialized, targeted coaching to solve this problem, called Technical Agility CoachingSM. Equipped with a set of proprietary assessment and software tools, Agile coaches quickly and effectively resolve the technical hurdles that prevent enterprises from reaching their business goals and true potential.

AGILE ADOPTION INDUSTRY CHALLENGES

Research has proven that successful adoptions of Agile methodologies lead to enhanced team engagement, increased productivity, higher quality products, and improved employee morale.¹ But as more and more large enterprises adopt Agile methodologies, several key challenges stand out as particularly difficult to overcome. According to survey respondents involved in Agile adoptions, the two most difficult issues to address are “changing business culture” and “adopting Agile technical practices”.² This whitepaper intends to address the latter, along with other high technology-related impediments to Agile adoption.

Many enterprises seek guidance and support from experienced Agile coaches to assess and manage the risks associated with these key challenges in order to improve the adoption success rate. According to the SAS Institute, Agile coaching is the practice most highly correlated with results for Agile adoption.¹ However, not all Agile coaches are created equal. Few bring both business experience and a technical background to assist in managing these risks, requiring multiple resources to create a balanced team of technical and business focused Agile coaches.

Adopting Agile technical practices can be extremely challenging for teams required to work with legacy systems. Many organizations fail to recognize the value of improving technical practices when adopting Agile, and struggle with developing software incrementally. The underlying cause may not be immediately obvious due to the technical nature of the problem, but the symptoms typically include teams that request longer sprint lengths, failure to deliver in small, working increments and strong resistance to technical practices such as continuous integration. If the Technical Agility of the business is not addressed, then adoption of other Agile practices and processes may be slowed, or even entirely halted, which undermines the value that businesses expect to derive from adopting Agile in the first place.

¹ Tim Arthur, “Agile Adoption: Measuring its Worth”, SAS Institute, Inc., prepared for Stanford University Strategic Execution Conference, April 2013, available at <http://support.sas.com/rnd/papers/2013/AgileAdoptionPaper.pdf>

² Scott Ambler and Associates, “2014 Agile Adoption Survey Results”, retrieved 18 August 2014 from <http://www.ambysoft.com/surveys/agileJanuary2014.html>

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WHAT IS TECHNICAL AGILITY?

The common term *Agile* is not a single, particular practice or methodology, but rather an umbrella term that is used to refer to a larger set of practices, techniques and tools that support a common set of values and principles. For example, Scrum is a popular *Agile* process framework that focuses on a combination of practices, roles and deliverables for product development teams. The term *Agility*, in this context, refers to the ability of a business to adhere to the common values and principles of the Agile Manifesto³, regardless of the specific techniques that are employed. *Technical Agility* is a subcategory of the umbrella term, and refers to the Agility of the enterprise systems comprised of software, hardware and related high technology assets.

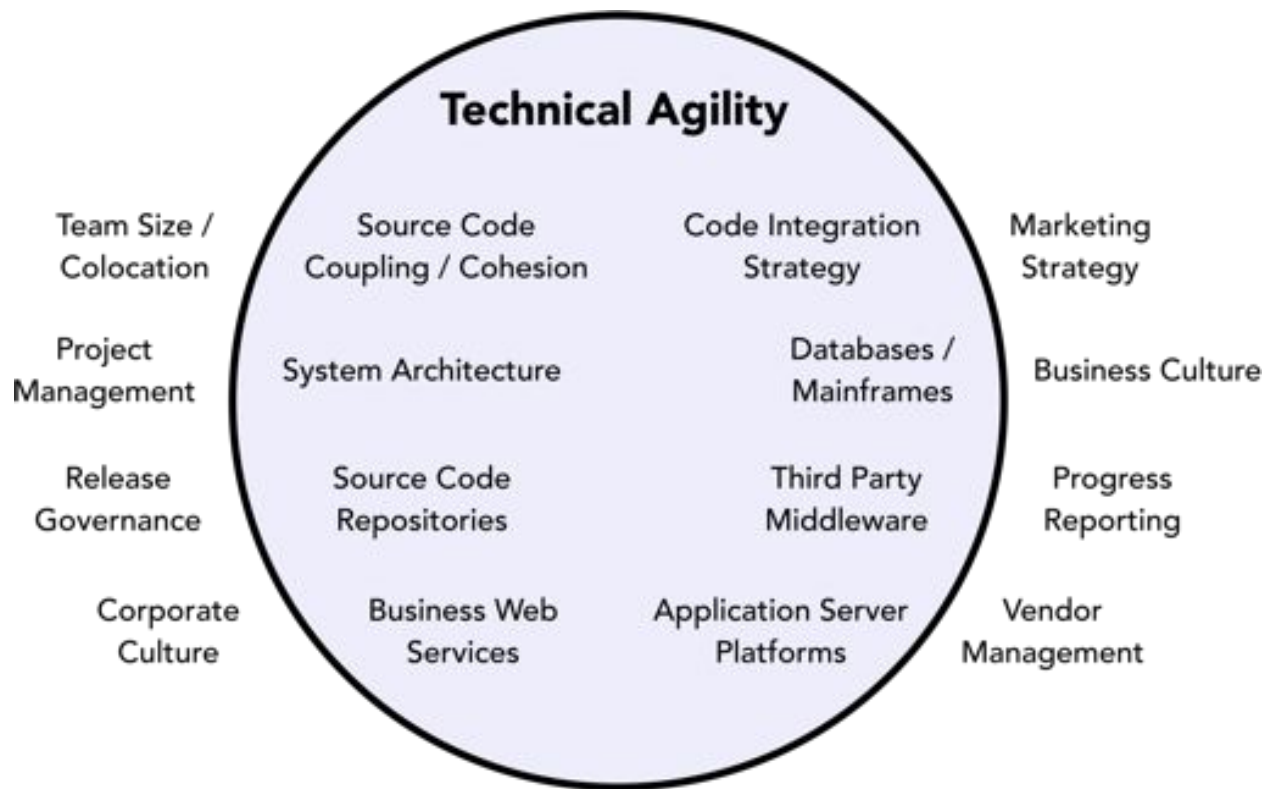
In order for a company to successfully adhere to the Agile values and principles, corporate policies, processes, culture, people and systems may all require significant changes. Many Agile adoption efforts emphasize processes, but fail to properly prepare the software systems themselves for Agile development. Technical Agility refers to the ability of those software and hardware systems to support the new processes and ceremonies. The diagram on the next page shows several mission critical business functions that directly impact Technical Agility. The business aspects depicted outside the circle may not directly influence Technical Agility and may be categorized as outside the umbrella term.

³ Beck, Kent; et al., "Manifesto for Agile Software Development", Agile Alliance, retrieved 18 August 2014 from <http://agilemanifesto.org>

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FIGURE 1: EXAMPLE BUSINESS ASPECTS THAT DIRECTLY IMPACT TECHNICAL AGILITY ARE INSIDE THE CIRCLE.



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ASSESSING TECHNICAL AGILITY

Taking the time to evaluate Technical Agility dramatically helps organizations understand whether certain high technology business assets are in fact, supporting or inhibiting, business success. This information allows businesses to focus technology-related resources on managing change in the right functional areas.

HOW TO EVALUATE

Having an organized and quantitative method for assessing Technical Agility greatly increases the value of conducting the initial assessment. In particular, the combination of subjective and objective analysis is very powerful when measured quantitatively. Qualitative analysis helps generate new ideas, but should rarely form a basis for assessment since qualitatively measuring progress poses many unnecessarily difficult challenges.

A good example of a quantitative, objective metric to include in a Technical Agility assessment is static code analysis⁴ results. Scoring systems such as this are valuable to include as subjective metrics that can be quantitatively captured. For example, a development team may score software maintainability in a range from 1-5 where 1 is “very difficult to maintain” and 5 is “very easy to maintain.” The results, when averaged, form a quantitative metric or Key Performance Indicator (KPI) allowing progress to be measured continually over time.

Be careful though. Failing to align an assessment directly to business outcomes may result in the assessment yielding little or no tangible business benefits. For example, assume a key business objective is to increase Technical Agility by adhering to the following Agile principle: “Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.” In this example, a valuable assessment might include a scoring system that rated the software stability from 1-5 where 1 is “unstable after development for periods exceeding a couple of weeks” and 5 is “stable enough to release within a week of a completed iteration.” These ratings align with the business goals and objectives in such a way that as the metric increases, business objectives are directly met.

⁴ Static code analysis refers to the process of running an automated program that reads and analyzes software source code, reporting potential bugs, security issues, and other important considerations that might indicate high versus low quality software.

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WHAT TO EVALUATE

While there may be thousands of different technology-related KPIs that could be gathered, a business should choose to evaluate those that directly support its goals. The following table provides an example list of some valuable metrics to consider.

TABLE 1: EXAMPLE (NON-EXHAUSTIVE) METRICS FOR A TECHNICAL AGILITY ASSESSMENT

Name	Description
Integration Strategy	Measure the frequency of software integrations, and time of conflict resolution.
Code Maintainability	Measure the ease of maintenance as reported by developers for a given product.
Cohesion / Coupling	Use static analysis and other measurements to gauge the agility of a codebase.
Refactoring	Measure how easily and often the development teams refactor source code.
Technical Debt	Quantify the scope and impact of technical debt on the development efforts.
Domain Modeling	Measure how closely the data models match the domain language of the business.

IMPROVING TECHNICAL AGILITY

By creating an assessment as described in the previous section, companies take the first step toward improving Technical Agility. The assessment results create an initial baseline or starting point for the company or teams that are evaluated. From there, the same assessment can be used to set quantitative goals for improvement efforts. A strategic performance plan with concrete steps becomes easier to create once equipped with a well-documented current and desired future state. At regular intervals, reassessing the team or teams provides increased accountability and continued progress to achieve the project plan and ultimately, business goals.

A simple and efficient assessment process helps ensure assessments can be completed regularly and timely. Without sufficient resources and on-going assessments, teams often struggle to advance. Improving Technical Agility requires development teams perform many different types of work, such as software development, refactoring, process improvement, code analysis and more. The business benefits of such work efforts include improved ability to work in small increments, increased product stability, reduced time to market and faster Agile adoption. In order to successfully improve, it is necessary to dedicate sufficient time and resources to implementing Technical Agility.


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HOW TECHNICAL AGILITY COACHINGSM HELPS

According to the SAS Institute, Agile coaching is the practice most highly correlated with results for an Agile adoption.¹ Slick Rabbit Technical Agility CoachingSM is a unique service that helps companies improve Technical Agility through targeted coaching. Specialized business and technology-focused coaches bring deep technical experience that surpasses typical Agile coaches, making them exceptionally well suited to work on improving the Agility of enterprise software systems. With powerful, proprietary assessment templates and proven software development tools, Slick Rabbit's Technical Agility CoachingSM effectively helps organizations speed up Agile adoption and start realizing benefits sooner.

These Technical Agility coaches start by evaluating key business objectives and creating customized Technical Agility assessments aligned with those goals. Coaches then guide the company through a baseline assessment and set quantitative targets before creating a detailed strategic improvement plan and work backlog. Accountability remains high when working with dedicated coaches who stay focused on results and offer both direction and support if targets are not consistently met. As a result of their technical expertise, coaches also provide hands on refactoring and code analysis.

Slick Rabbit Technical Agility coaches quickly and effectively resolve the technical hurdles that prevent enterprises from reaching their business goals and true potential.

***To learn more about Technical Agility CoachingSM from Slick Rabbit,
contact us via email at info@slickrabbit.com,
or call one of our representatives at (919) 238-1513.***

For additional information, visit www.slickrabbit.com.