Memorandum

DATE: July 14, 2014
TO: K-12 Leads
FROM: Joe Willhoft, Executive Director
Tony Alpert, Chief Operating Officer
RE: Open-Source Test Administration

We recently received a question regarding the Smarter Balanced open-source test administration platform and its readiness to administer tests in 2014-15. This memorandum is intended to address questions about both the value and the risks associated with this important deliverable from Smarter Balanced.

The Open-Source Value Proposition
As described in the Smarter Balanced grant proposal to the U.S. Department of Education, states that are members of Smarter Balanced embraced the value that open-source technology affords them. Members are eager to derive the anticipated benefits of lower costs and increased quality. In addition, we anticipate that the availability of open-source software will provide more flexibility for members regarding how best to implement the Smarter Balanced Assessment System.

Quality of Smarter Balanced Open-Source Software
Smarter Balanced members have been working with American Institutes for Research (AIR) for four years to refine the Smarter Balanced approach to delivering college and career readiness assessments. Smarter Balanced members created the requirements and specifications, conducted comprehensive quality-control review, and provided substantial feedback regarding the test administration functions that their stakeholders require. In addition, the functionality of the software has been thoroughly vetted through cognitive labs, small-scale trials, pilot testing, and field testing. Finally, most of the underlying functions of the test administration platform being used by Smarter Balanced are grounded in code that has been used in many states' operational tests for almost a decade.

Risks of the New Open-Source Software
Smarter Balanced members envisioned a test administration platform supported by an open-source community of developers. To that end, the computer code is most likely to be embraced by this community when it uses an open-source platform, including the operating system, runtime environment, and database. Accordingly, Smarter Balanced has chosen a platform and components that are popular and that have been proven at large scale in the open-source community. The open-source system is based on the software that was used in the spring 2014 Smarter Balanced Field Test, which included more than 4.2 million students. However, the Field Test system used a mix of open and proprietary components. In order to meet Smarter Balanced requirements, it was necessary that all of the code be transitioned to the open-source platform.

In most cases, this transition involves a translation from one language and platform into another, while all of the algorithms and infrastructure remain the same. However, with any coding project there are risks of error. The following steps are being taken to reduce the likelihood of problems:
1. AIR is conducting detailed testing on the software to compare the efficiency of the open-source code with that of the code used during the Field Test.
2. AIR and Smarter Balanced are collaborating with member states and their service providers to conduct comprehensive user acceptance testing on the open-source software.
3. Smarter Balanced is negotiating a support contract to address software bugs that were unforeseen in the requirements gathering or in previous user acceptance testing processes.

4. Smarter Balanced and its contractors will supply Tier Three technical support to vendors who use the open-source solution for test delivery.
5. Smarter Balanced is engaging state chief information officers in a monthly WebEx, and is engaging the service provider community via the website http://www.smarterapp.org, to monitor and address risks.
6. The open-source nature of the project provides a venue to improve quality and reduce risks over time.

Smarter Balanced and its contractors stand behind the open-source solution and will be actively involved, throughout the test delivery process, in ensuring that the code is reliable, helping vendors plan for appropriate scale, addressing emerging issues, and doing everything else that is necessary to ensure successful assessment delivery in all member states.

Risks of Existing Proprietary Software

Early in the grant, Smarter Balanced announced that it would allow states to select service providers that use proprietary assessment administration systems, as long as those systems provide results that are comparable to the results produced by the open-source software. Smarter Balanced provided this opportunity for two primary reasons:

1. Service providers may determine that supporting their proprietary testing platform is less costly, given that their existing staff are already knowledgeable about the design, maintenance, and implementation features of their own software; and/or
2. The proprietary software may be able to meet a state's immediate needs for the administration of additional state-specific assessments, unrelated to Smarter Balanced assessments.

The use of proprietary software has its own short-term and long-term risks. These risks include:

1. It is rare for testing software to stay completely unchanged from year to year. Changes to the software are usually required based on functionality changes requested by users, or are necessary to address external issues (e.g., operating system changes, new hardware options, security issues). As such, any changes will likely need to go through comprehensive quality controls and regression tests to ensure that they did not introduce unanticipated bugs.
2. Using proprietary software likely reduces a state's hosting options.
3. Using proprietary software may make it more difficult for a state to change service providers, should the need arise.
4. Enhancements to functionality, formats, and data specifications may arrive later in proprietary software, as Smarter Balanced will first implement them in the open-source solution.

State Decision-Making

When states plan their test administration, they should consider the short- and long-term risks. In addition, states should consider that they may change their approach over time, as needs change and/or as the market changes. If states need additional information or assistance, Smarter Balanced staff are available to discuss the options that are available to states.