



Case Study

The **Right** Approach for the SOA Dynamic Testing Model

Background

The Society of Actuaries (SOA) is the largest actuarial professional organization in the world, dedicated to serving 18,000 members and the public. SOA's vision is for actuaries to be recognized as the leading professionals in the modeling and management of financial risk and contingent events. SOA administers several tests to measure professional qualifications; two of its most important exams are the P/1, which measures probability, and the FM/2, which measures financial mathematics. SOA collaborates with the Casualty Actuarial Society (CAS) and the Canadian Institute of Actuaries (CIA) on the development and administration of these examinations.

In 2001, Prometric began working with CAS to support its test development needs, which eventually led to a Prometric relationship with all three Societies. Prometric has identified subject matter experts (SMEs) and hired exam authors; concurrently, it has handled all test item bank editing with exam committees comprised of representatives of all three organizations.

Challenge

In 2005, Prometric migrated the P/1 exam from a paper-based test (PBT) to a computer-based test (CBT). In May 2008, it followed suit by offering the first computerized FM/2 exam. Since the transition to CBT, Prometric has helped SOA deliver more than 30,000 exams annually—both in the U.S. and internationally.

Having migrated the P/1 and the FM/2 exams to CBT, SOA now wanted to increase its number of testing windows annually and provide immediate results to its candidates. Anytime an exam is offered frequently, there is a need to have an item bank large enough to support the increased frequency. This keeps the test items from being overexposed or memorized. SOA needed to create a testing model that was flexible and accommodated its desire to offer additional test windows for its candidates while keeping its exams and items secure.

Strategy

Prometric suggested SOA try the dynamic forms generation testing model call Linear-on-the-fly Testing (LOFT). The solution utilizes "Item Response Theory" statistics to produce an individually assembled exam for each candidate. LOFT generates a virtually unique testing experience for each and every exam candidate. Concurrently, the method adjusts the item selection routine to account for item exposure, making the memorization of significant portions of the overall exam extremely difficult. This process ensures that each candidate receives a completely unique and "individualized" exam. Success of LOFT exams is highly dependent on having enough items within the bank to support the model, ideally eight-to-10 times the size of the items in an item bank for a "normal" CBT.

SOA Fast Facts:

Location: Schaumburg, Illinois

Challenge: Reporting scores quickly and increasing the number of annual testing windows.

Outcome: "CBT and LOFT benefit our candidates in three important ways: immediate results, frequent administrations and flexible scheduling."

Solution

SOA administered its first LOFT P/I exam in May 2008. A representative of SOA explained, “A significant part of reaching this decision was the idea to eventually take all our exams to a LOFT model... primarily to provide immediate results and give our exams more frequently.”

Prior to CBT and LOFT, the P/I exam was given twice each year, with each administration offered on a single day at a single time. Under CBT and LOFT, there were multiple administrations each year, providing much more flexibility for candidates to register for and take the exam.

Outcome

LOFT has proven to be hugely beneficial to SOA and its membership. The P/I exams are delivered to 3,500 candidates per test item window, and each P/I exam is now truly individualized. Tests display a total of 30 items, and with more than 10 times this number of items in the bank, not one aspiring actuary takes the same exact test. The risk of item overexposure is mitigated. Candidates have expressed favorable impressions of the more frequent availability of tests, but primarily because of the speed in communicating testing results.

According to SOA, “CBT and LOFT benefit our candidates in three important ways: immediate results, frequent administrations and flexible scheduling. Speed of reporting has been immensely popular among candidates. In the past, candidates waited eight to 10 weeks for results. Now, results are communicated almost immediately. This is the most significant thing Prometric has done for us.”

Another important benefit for the SOA is the efficiency with which exams can be reviewed for balance. For instance, SOA’s process of reviewing exams to ensure they are “balanced” was historically a labor-intensive process, ensuring that specified subject areas had the appropriate coverage of certain topics to adequately test knowledge. Thanks to LOFT, exams created “on-the-fly” meet specifications yet remove SOA’s need to be intimately involved in review. This is a critical element for enabling the SOA to increase its number of test windows.

“This represents a huge number of exams for us, and it would be entirely too difficult to accomplish this goal without LOFT,” added Alps.”

SOA and Prometric recently committed to continuing their relationship through 2013. Thanks to these cutting-edge technological testing methods and collaboration with Prometric’s psychometricians, SOA members might be measuring risk...but their P/I and FM/2 exams are risk free.

Find Out More

Learn more about our *Test Development and Delivery Solutions* by visiting www.prometric.com or by calling toll-free 1-855-855-2241.