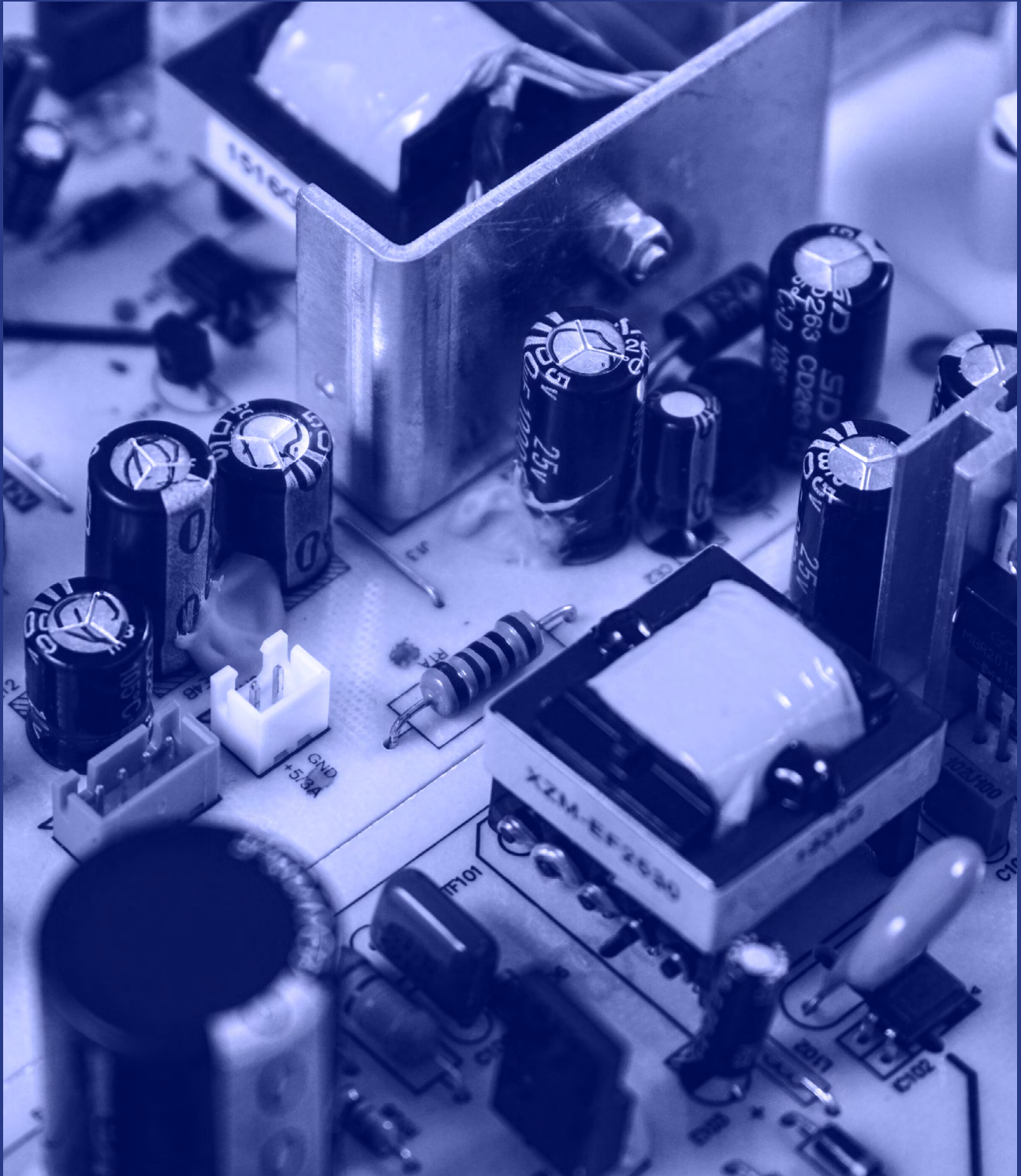


**TALENT.**

TALENT WHITEPAPER

# Computerised Adaptive Testing



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Competency-based assessment is the current gold standard for assessing a candidate's workplace performance. This accuracy is achieved by measuring the two traits that are most predictive of workplace performance – cognitive ability and personality. Measuring a candidate's mental horsepower, Hunter (1986) found that general cognitive ability predicts performance in all job types. Personality, on the other hand, can determine candidate-culture fit and measure candidates on traits related to job success. For example, our own research has found that call centre representatives who score highly in sales focus convert almost 1.5 times more outbound calls to sales than representatives who score in the low range. Similarly, we have identified a number of personality core competencies which predict work performance in a large number of job roles.

But history is littered with innumerable technologies which were the gold standard and then were consigned to the graveyard of history after failing to adapt to change. Fortunately, this is not the case with competency based assessment, new technologies have evolved competency based assessment to be better than ever before – and this latest evolution is called Computerised Adaptive Testing.

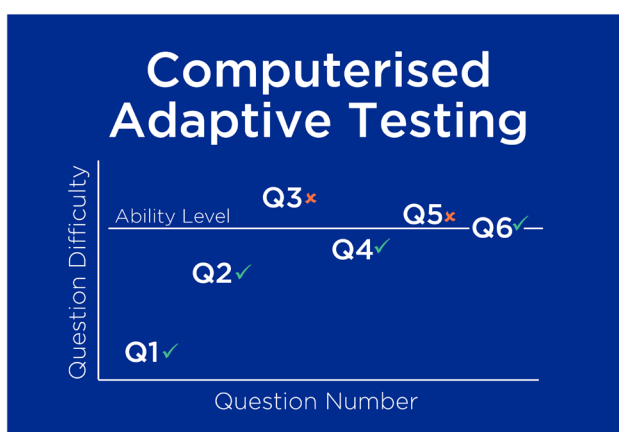
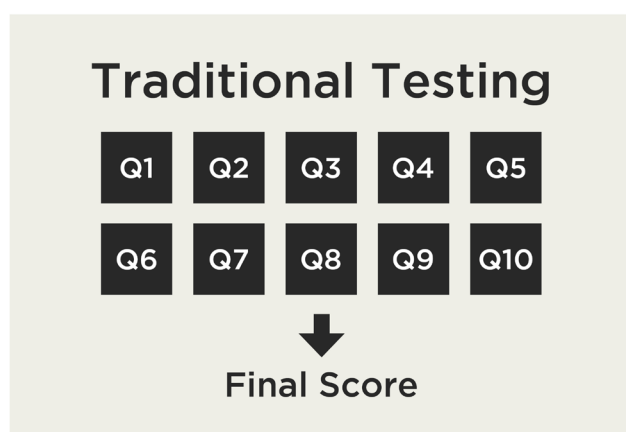
Computerised Adaptive Testing is a new form of testing which adapts itself to the ability level of the test taker in order to increase the precision of the assessment. The principal difference between traditional and Adaptive Testing is the way in which questions are administered. A traditional test asks candidates every question from a set list, and uses this to determine their ability. But answering every question inevitably means that candidates end up answering questions which are poorly suited to their ability. Top-performing candidates will become bored having to answer question after question which they find trivially easy, while candidates on the lower or average range of cognitive ability will be repeatedly frustrated by questions which they find too difficult.

Adaptive Testing adapts the questions asked to the candidate's ability level based on their previous answers. These questions are drawn from a database where every question has a statistically established difficulty level. Essentially, this means that candidates will never be asked many questions which are substantially outside of their level of cognitive ability. While it sounds like a simple solution to the complex challenges posed by psychometric assessment, Adaptive Testing produces numerous benefits over traditional testing solutions.



## Tests are faster

Perhaps the biggest advantage provided by Adaptive tests is the speed with which they are administered. A traditional test asks candidates numerous questions which are either too hard or too easy for candidates to answer, adding unnecessary length to an assessment. Instead, Adaptive Testing begins with easy questions and then adapts the difficulty based on whether or not candidates answer them correctly. In this way, it can quickly establish a baseline level of ability, and then use the remaining questions to fine tune results. By only asking questions which are suited to a candidate's ability, tests become significantly shorter. Talegent's own data shows that our Computerised Adaptive Cognitive Tests are 30% faster than our traditional testing solutions.



## Re-testability

With competency-based assessment, you sometimes want to dig a little deeper. A screening test gives a good estimate of a candidate's ability, and is an effective means for culling the candidates who you know aren't up to task. But comparing and choosing between a number of excellent candidates may require additional testing. Unfortunately, there is some evidence that retaking assessments results in better candidate performance, known as a practice effect (Dikmen, Heaton, Grant, & Temkin, 1999).

Adaptive Testing avoids the practice effect because it asks candidates different questions every time. While it is feasible that some questions may be repeated on an Adaptive Test (as candidates will be asked questions of the same difficulty), Adaptive Tests have exposure control algorithms to prevent any one question from appearing too often. Ultimately, this makes re-tests less prone to practice effects due to questions being less likely to appear between tests.



## Tests are harder to cheat

The average job opening receives over 200 applicants, and the unfortunate reality is that at least some of these candidates may be less than honest. In a large recruitment drive, it's not impossible that candidates may share answers with one another, particularly graduates who share the same peer group. This problem is compounded by assessments being administered online. While online assessment is an excellent tool for administering many tests simultaneously, it also comes with the risk of an unscrupulous test-taker taking the questions and sharing them with other candidates over the internet. While there are safeguards in place to prevent this happening, a devious candidate may still find their way around anti-cheat measures.

Adaptive Tests however, are much harder to game. Because questions are drawn from a much larger data pool, it's highly unlikely that any two candidates will receive the same test. So even a candidate who goes in with some knowledge of what is going to appear is unlikely to perform any better than their unprepared peers.

## More accurate for high and low range performers

Traditional tests are excellent at predicting scores for those in the middle range of ability, but become increasingly inaccurate for those who are in the extremely high or low range of ability. This is because there are usually only one or two items designed to test those at the extremely high or low ends of performance. For example, in a traditional test it's probably not worthwhile to have 50 questions that only 2% of the population can answer, as the other 98% will find themselves frustrated by 50 seemingly unanswerable questions. Adaptive Testing avoids this issue nicely by only presenting these ultra-hard questions to those candidates who have already proven their ability to answer them by acing every easier question.

Because of this, Adaptive Testing far outstrips traditional testing at differentiating between the fine differences which exist amongst the top scorers. And since most employers are not interested in the candidates who are simply average, Adaptive Testing is the perfect tool for differentiating between the exceptional. Despite every candidate being administered a different test, it is still possible to compare candidates to one another with a high degree of accuracy. Essentially, questions are carefully designed so their level of difficulty relative to other questions is known. This means that regardless of which question set a candidate gets, it is possible to know how well they perform compared to their peers.

## More difficult to develop

While Adaptive Tests provide numerous advantages over traditional testing, they come at the cost of being more difficult to develop than traditional tests. In order for different candidate's results to be comparable to one another, each question must be thoroughly tested in order to determine its difficulty level. In order to obtain stable item statistics, an adaptive test may have to be tested on a sample of hundreds of candidates. However, the advantages provided by Adaptive Testing far outweigh the costs, particularly when development has been conducted by a third party provider.

# Conclusion

Computerised Adaptive Testing offers numerous advantages over traditional testing initiatives including test length, test precision, and difficulty of cheating. As we move into the future Adaptive Testing initiatives are becoming more and more likely to be adopted by recruiters due to the improved candidate experience which they offer.

## References

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