

**REVELIAN**

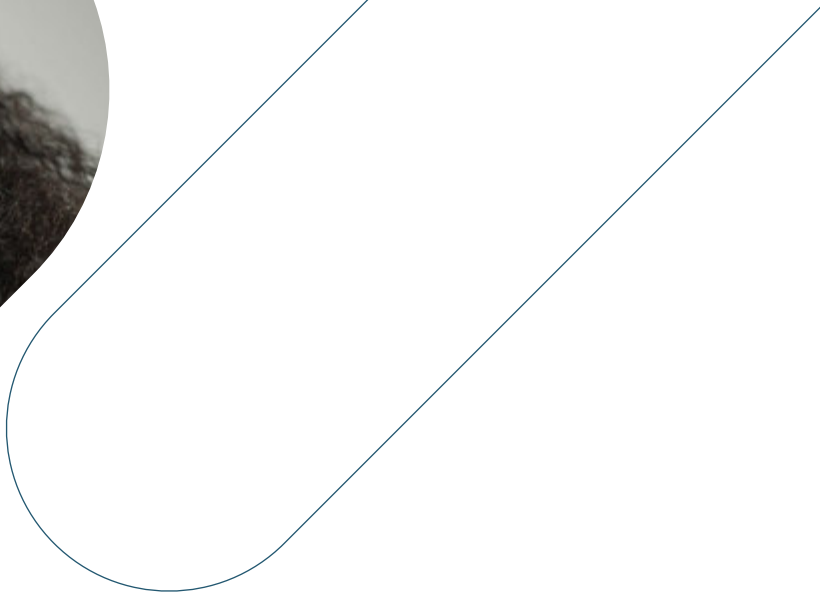
A Criteria Company

Talent Insight Revealed

ASSESSMENT INFORMATION BRIEF

# Cognitive Ability Test





## ASSESSMENT INFORMATION BRIEF

# COGNITIVE ABILITY

Predict future job performance

A person's cognitive ability is a powerful predictor of their future work performance and how suitable they are for the job.

More than 100 years of research has clearly shown cognitive ability to be the single most powerful predictor of performance on the job, across all roles, industries and management levels.

This is because a person's cognitive ability reflects how well they will acquire, organise, retain and apply information on the job. People with high levels of cognitive ability can:

- perform work tasks more accurately and efficiently
- make decisions more effectively
- use reasoning skills and solve problems
- respond intelligently to new or complex circumstances

Investing in cognitive ability testing empowers you, as a hiring manager, recruiter or business owner, to make clever decisions when filling positions. This means your business will have a greater chance of increasing overall performance and decreasing involuntary employee turnover.



### MEASURE

General cognitive ability– also known as general mental ability (GMA) or aptitude.



### PREDICT

Predict how well someone will acquire, organise, retain and apply information on the job.



### TIME

20 minutes, timed



### QUESTIONS

51 questions

# WHAT IS COGNITIVE ABILITY?

Cognitive ability is another term for intelligence, problem solving capacity or reasoning ability. Technically, cognitive ability refers to the ability to process information, encompassing its acquisition, organisation, retention, and application. The Revelian Cognitive Ability Test (RCAT) consists of 51 questions, each of which requires the candidate to process verbal, numerical, or abstract information in order to answer the question correctly. The candidate is scored based on the number of questions they have answered correctly.

# WHY MEASURE COGNITIVE ABILITY WHEN SELECTING STAFF?

People who score well on cognitive ability tests use their high-level information processing skills to solve job related problems more effectively, and to learn the job more quickly. As a result, people with strong scores on cognitive ability tests tend to perform better on the job and in training. Research clearly shows that cognitive ability is one of the strongest predictors of subsequent job performance .

Cognitive ability becomes more important as a predictor of job performance as the complexity of the job increases. Cognitive ability is especially important in jobs that require people to process large amounts of information, such as complex technical jobs and managerial roles. Cognitive ability is also very important in jobs that involve a great deal of training, such as apprentice and graduate roles.

# COGNITIVE ABILITY QUESTIONS

The RCAT includes a mixture of verbal, numerical and abstract information processing questions. Each question requires the candidate to acquire some information from the question, and then retain, organise and manipulate that information in order to answer the question correctly. By examining the performance of the candidate across a number of different question types, an estimate of the candidates overall level of cognitive ability can be obtained.

The example questions shown here are relatively easy – most individuals get all the questions correct. In the actual assessment, the questions become more difficult as the candidate moves through the test. Questions in the assessment range in difficulty from questions that a large majority of candidates answer correctly, to questions that only a small proportion of candidates answer correctly. This broad range of questions, and range of question types, means that the RCAT provides a comprehensive assessment of cognitive ability, which is applicable to a broad range of complex and less complex job roles.



## VERBAL REASONING

**REVELIAN**

**COGNITIVE ABILITY**

Four of the following are alike in some way.  
Please select the other two.

Boat	<input type="checkbox"/>	Bus	<input type="checkbox"/>
Walk	<input checked="" type="checkbox"/>	Train	<input type="checkbox"/>
Run	<input checked="" type="checkbox"/>	Car	<input type="checkbox"/>

1 of 5

NUMERICAL REASONING

**REVELIAN**

**COGNITIVE ABILITY**

Replace the question mark with the missing number?

22	24	?	28	30	32
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1 of 5







SUBMIT

ABSTRACT REASONING

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**COGNITIVE ABILITY**

Select which two of the six items does not belong with the others?

1 of 5

SUBMIT

# NORMATIVE GROUPS

When a candidate completes the RCAT, their score is calculated by totaling the number of correct answers they achieved out of a possible 51. This score is actually meaningless until you contrast it with scores achieved previously by specific groups of people. The group that you contrast the score against is vitally important for the interpretation you make. In other words, the more relevant the comparison group to the position, the greater confidence you can place in the interpretation of the score achieved by the candidate.

Revelian has four types of comparison groups that may be used when interpreting candidate scores on the RCAT (up to three of these can be displayed in the candidate's report at any one time). The types of comparison groups available for selection is dependent on the assessment language that has been selected for the position and is briefly outlined below:

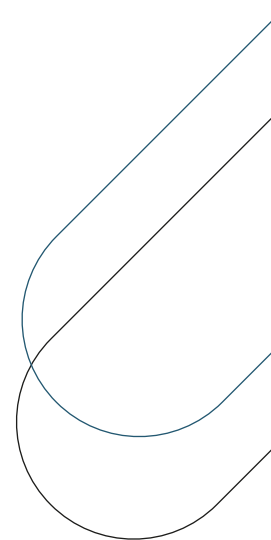
**General Population** - Comprised of a large group of individuals from a wide range of industries and job types.

**Industry Group** - Industry comparisons provides additional information that aids in determining whether a candidate has the ability that is consistent in peers who are operating within a similar industry.

**Management Level** - Managerial level comparisons provides additional information that aids in determining whether a candidate has the ability that is consistent in peers operating at a similar level.

**Company Specific Benchmark** - Provides a benchmark of the existing level of ability of current employees at the organisation. Please contact Revelian if you would like further information about creating an organisational specific benchmark.

Revelian continues to add new comparison groups as the data becomes available.



The table below lists the currently available comparison groups for RCAT:

	AUSTRALIAN ENGLISH	AMERICAN ENGLISH
General Population	✓	✓
<b>INDUSTRY GROUPS</b>		
Accounting & Finance	✓	
Public Service - General	✓	
Aviation	✓	
Call Centre	✓	
Clerical & Administration	✓	
Correctional Services	✓	
Customer Service & Support	✓	
Engineering	✓	
Human Resources	✓	
Information Technology	✓	
Legal Profession	✓	
Marketing	✓	
Production & Process	✓	
Resources	✓	
Retail	✓	
Sales	✓	
Science-General	✓	
Trades	✓	
<b>MANAGEMENT LEVEL</b>		
Apprentices	✓	
Public Service - Graduate	✓	
Graduates	✓	
Entry Level Managers	✓	
Mid-Level	✓	
Senior Level	✓	
<b>BENCHMARK</b>		
Company Benchmark	✓ (	)
	(Available upon request)	

Note: Additional normative comparison groups beyond the General Population group are available to enterprise clients only.

## EXAMPLE ROLES IN INDUSTRY NORMATIVE GROUPS FOR RCAT

Revelian is constantly working towards the development of new industry benchmarks. The table below provides some examples of what is classified as a typical role within each available industry comparison group

INDUSTRY GROUPS	EXAMPLE ROLES
Accounting & Finance	Accountant, Accounts Payable/Receivable, Book Keeper, Credit Officer, Financial Controller
Public Service - General	A range of professions across Government departments (non-graduate Public Service position)
Aviation	Air Traffic Controllers, Flight Coordinators, Aviation Engineers, Aircraft Maintenance Staff, Baggage Services Staff, Pilots
Call Centre	Call Centre Consultant, Contact Centre Operator, Customer Contact Consultant.
Clerical & Administration	Administration Officer, Database Administrator, Secretary, Inventory Coordinator, Office Support
Correctional Services	A range of positions across Australian prisons
Customer Service & Support	Receptionist, Help Desk Officer, Client Services Advisor, Member Services Officer, Customer Service Representative
Engineering	Technician, Mechanical Engineer, Manufacturing Engineer, Mining Engineer
Human Resources	Training & Development Officer, Recruitment Consultant, OH&S Officer, Employee Relations Officer, HR Advisor
Information Technology	Web Developer, Data Analyst, Network Administrator, Programmer, Software Engineer
Legal Profession	Article Clerk, Lawyer, Legal Assistant, Legal Secretary, Solicitor
Marketing	Marketing Manager, PR Manager, Marketing Director, e-Business Manager
Production & Process	Driver, Dispatch Officer, Inventory Controller, Logistics Coordinator, Packaging Officer
Resources	Mining, Oil, Gas Production Worker, Mining, Oil, Gas Maintenance / Fitter, Mining, Oil, Gas Shift / Site Supervisor, Mining, Oil, Gas Driver
Retail	Store Administrator, Branch/Store Manager, Food Safety Officer, Inventory Controller, Retail Sales Assistant
Sales	Account Manager, Business Development Manager, Sales Representative, Product Manager, Sales Support, Sales Executive
Science-General	Chemist, Lab Technician, Pharmacist, Environmental Officer, Food Technologist, Geologist
Trades	Electrician, Fitter & Turner, Mechanic, Technician, Tradesperson, Draftsperson



## EXAMPLE ROLES IN MANAGEMENT LEVEL NORMATIVE GROUPS FOR RCAT

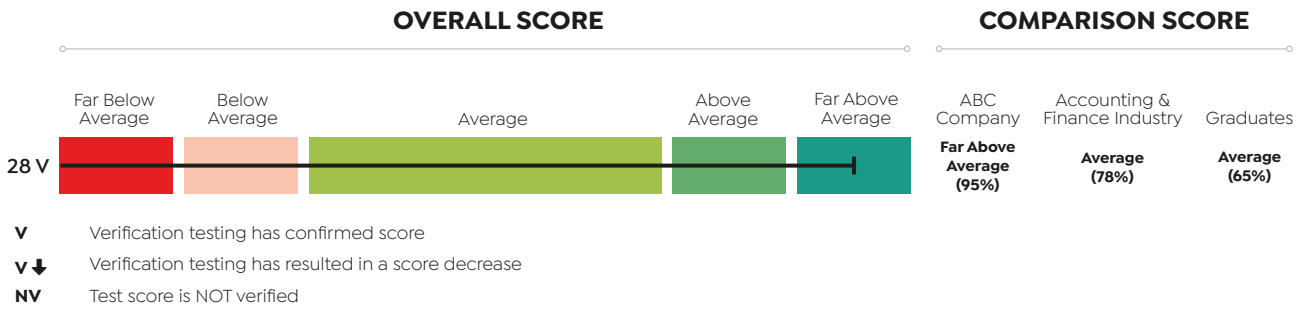
Revelian is constantly working towards the development of new management level benchmarks. The table below provides some examples of what is classified as a typical role within each available management level comparison group.

MANAGEMENT LEVEL	EXAMPLE ROLES
Apprentices	Apprentice positions
Public Service – Graduate	Graduate positions within the Government sector
Graduates	Graduate positions
Entry Level Managers	Team Leader, Coordinator, Supervisor, Assistant Manager
Mid-Level	Store Manager, Area Manager, Branch Manager, General Manager
Senior Level	Chief Executive Officer, Director, National Account Manager, Executive

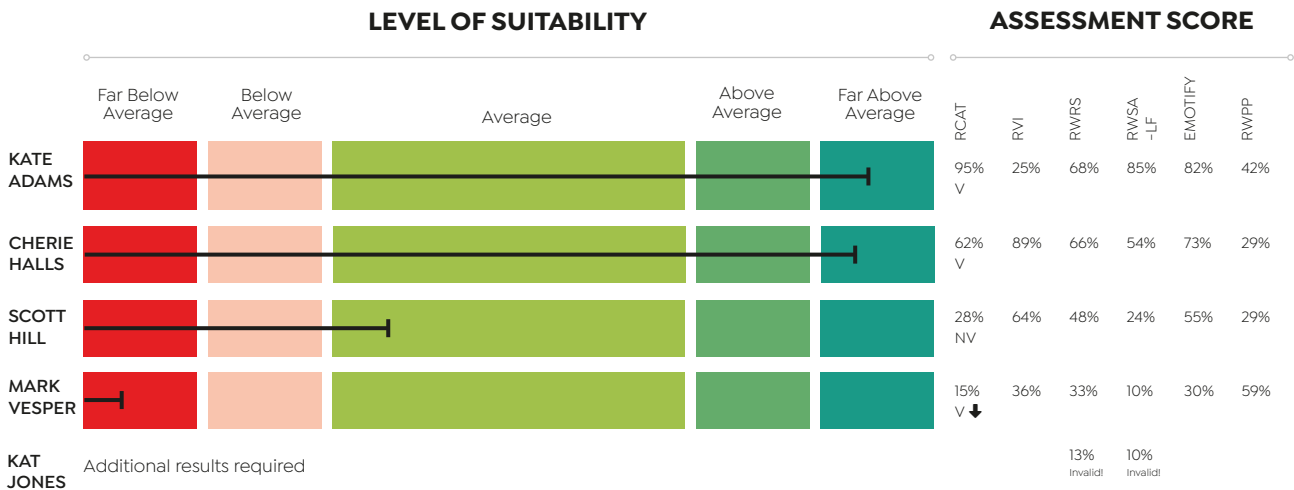


# REPORTING

In the report you'll receive, the candidate's 'raw' score is compared with the scores of other candidates who have also completed the assessment. In the example below, the candidate answered 28 questions correctly, and this score has been compared against three comparison groups. The score exceeded 95% of people in a company specific group formed of individuals currently employed in "ABC Company"; 78% of people in an industry benchmark of Accounting & Finance; and 65% of people when compared to the comparison group of "Graduates".



When multiple candidates for the one position complete the RCAT, then the results of those candidates are compared against one another in a position report, which ranks the candidates in terms of their performance on the assessment. An example of this type of reporting is shown below.



# CREATING A FAIR ONLINE CANDIDATE EXPERIENCE

Like all Revelian assessments, the RCAT can be completed remotely over the internet under unsupervised conditions. This provides a high level of flexibility and convenience for the candidate. When testing is conducted under unsupervised conditions, however, it is possible that the candidate may have had assistance in completing the assessment, and it is essential to protect the security of the assessments. Revelian adopts the following best practice strategies to ensure on-line security, and reduce the likelihood of cheating.

## **MOTIVATING CANDIDATES TO COMPLETE THE TEST HONESTLY**

All candidates are informed that if they progress in the recruitment process, they will be tested again with different questions to confirm their results. This ensures that candidates are motivated to complete the assessments honestly and accurately.

Prior to completing the Revelian assessments, all candidates are required to electronically endorse a short statement, indicating that they:

- Will not receive help from others when answering assessment questions; and
- Will be honest, accurate and perform at the best of their ability.

## **UNIQUE ASSESSMENT FORM FOR EVERY CANDIDATE**

Candidates who sit the assessment will randomly receive a unique set of questions, different to those streamed to other candidates. This is achieved through Revelian's application of Linear-on-the-Fly (LOFT) item streaming for the RCAT. Furthermore, answer options in each test are randomly scrambled. Both these features ensure that no two candidates will receive the same test, thus greatly reducing the possibility that candidates will collaborate when completing assessments.

## **SECURE ONLINE ASSESSMENT**

Our online testing engine is delivered using secure web technology, which allows us to ensure that assessment security and integrity is maintained and that assessment time is tracked accurately.

## **DETAILED ASSESSMENT SESSION LOGGING**

From the moment the candidate logs in to start their assessments to the moment they finish, Revelian creates detailed test logs of the candidate's testing session, including time spent in the assessment, internet connectivity, and individual issues and actions within each game played. If the candidate indicates that their internet connection dropped out, or that they were disturbed while completing the assessment, assessment logs can be consulted to verify and help to support these claims.

## **CANDIDATES CAN ONLY COMPLETE THE ASSESSMENT ONCE IN A 12 MONTH PERIOD**

In order to ensure that all candidates can be compared against one another fairly, Revelian restricts candidates to one completion of each assessment within a 12 month period. To facilitate this, we gather identification details from candidates at a number of stages of the application and assessment process, so that new candidates can be compared against candidates in our database. If a candidate has completed a specific test within the previous 12 months, then they are not able to sit the assessment again. Rather, they are provided with the opportunity to 'release' their previous results to the new employer. This strategy eliminates candidate practice effects, resulting in fairer and more accurate assessment scores.

## **VERIFICATION TESTING**

Revelian provides a free verification service, whereby individuals who have been tested remotely on the Revelian Cognitive Ability Test (RCAT) can be re-tested on a parallel form of the test with different questions under supervised conditions. Revelian's systems automatically compare the results from the initial unsupervised assessment to the verification assessment. If the candidate does not verify their initial score then their results are updated to reflect the results from the second verification assessment and the client is informed.

# VALIDATION AND PSYCHOMETRIC SUMMARY

## **THEORETICAL BACKGROUND**

The Revelian Cognitive Ability Test (RCAT) is a test of general cognitive ability, or general intelligence, defined as the capacity to acquire, retain, organise and apply information in order to solve problems. The concept of general intelligence was first proposed to account for research findings demonstrated that there is almost always a high degree of overlap between people's scores on supposedly different cognitive ability tests (e.g. verbal and numerical reasoning). Someone who scores above average, for example, in a test of verbal reasoning, is also likely to score well on a test of numerical reasoning. The higher the individual scores on one test, the more likely they are to also score higher on a range of other tests. These findings suggest that people have a general capacity to process information, regardless of whether that information is in a verbal, numerical, abstract, spatial or other form. A person's general cognitive ability, therefore, represents a global factor that influences performance on a wide range of tests and tasks.

Tests of general cognitive ability use a wide range of question types, with each type of question requiring different information to be processed, and different cognitive strategies to answer. With such a broad range of questions, the overall result on the assessment reflects an individual's general information processing capacity. The RCAT includes 25 different types of questions, each of which requires a different strategy to solve, and/or a different type of information to be processed. These 25 question types are grouped into three overall categories: verbal, numerical and abstract. A person's overall score on the RCAT therefore provides a reliable insight into that person's general information processing capacity.

People who score well on the RCAT also tend to perform better in learning and training tasks, because learning new information requires a great deal of new information to be acquired, retained, organised and applied. Furthermore, the questions within the RCAT get more difficult as the assessment progresses. In order to solve the more difficult questions at the end of the test, an individual has to apply the lessons learnt in solving the easier questions at the beginning of the test. Someone who scores well, therefore, has demonstrated within the test the capacity to learn.

These findings are similar to those that are typically reported in the scientific literature. For example, a large scale study of 32,000 individuals from 515 different jobs showed that general cognitive ability was the single most powerful predictor of job performance across this wide variety of jobs. Findings such as these provide confidence that general cognitive ability is one of the most important factors to assess in any job candidate.

## DEVELOPMENT AND VALIDATION OF THE REVELIAN COGNITIVE ABILITY TEST

The Revelian Cognitive Ability Test was developed in a number of stages. These were:

**Question development:** Initially a large sample of questions was developed across the verbal, numerical and abstract fields. These questions were evaluated and modified through a process of expert review.

**Question testing:** Subsets of potential verbal, numerical and abstract questions were administered to a total 716 individuals in order to assess the extent to which the questions distinguished clearly between high performing and poor performing people. On this basis, a final assessment set of 51 questions was developed, including 17 numerical, 17 verbal, and 17 abstract type questions.

**Assessment Validation:** The final set of 51 questions was put in computerised format and administered to 350 individuals from a wide range of industries, with a wide range of educational backgrounds. The assessment was found to validly measure general cognitive ability, and to correlate in meaningful ways with factors such as educational background.

Once the initial form of the cognitive ability test was developed, work commenced on developing more items and growing the item bank. Over the course of a number of years these items formed parallel tests which were randomly streamed to candidates. Each parallel form of the test included questions that were matched for type and difficulty and produced results that were highly correlated with the original version of the assessment. For this reason, confidence could be placed in the comparability of results across the parallel forms.

As item development and validation efforts continued, the RCAT item bank reached a size sufficiently large enough to utilise Linear-on-the-Fly (LOFT) item streaming methodology. Under LOFT items are streamed randomly to candidates, ensuring that each candidate is administered a unique form of the assessment. Both item type and difficulty is controlled, allowing fair and equitable comparisons between candidate scores. LOFT also affords the opportunity for Revelian to continually develop and integrate new items into the RCAT item bank, thus further enhancing the validity and security of the assessment.

Ongoing validation of the RCAT has included large scale exploratory and confirmatory factor analysis involving over 30,000 test scores, all of which have supported the identity of the RCAT as an assessment of an individual's global information processing capacity. Furthermore, case studies conducted with multiple clients have demonstrated the capacity of the RCAT to predict job related performance criteria, training criteria, and assessment criteria across a range of job types as broad as sales, air traffic control, administration, management, truck driving and finance.

## PSYCHOMETRIC SUMMARY

The statistical results of the development and validation process are summarised below, and provide confidence that the RCAT represents a reliable and valid measure of cognitive ability. The RCAT has:

- An internal consistency of 0.89 ( $p < .05$ ). This indicates that the questions within the RCAT form a coherent group that reliably assess cognitive ability.
- A test-retest reliability of 0.78 ( $p < .001$ ; average 2 months between administrations). This indicates that an individual's score on the RCAT is very stable over time. Someone who sits the assessment twice is likely to achieve a very similar score on both occasions.
- A correlation with the Wonderlic Personnel Test of 0.72 ( $p < .05$ ). The Wonderlic is a well-established and empirically supported assessment of cognitive ability. This correlation indicates that the RCAT is validly assessing the construct of cognitive ability.
- An uncorrected predictive validity of 0.39 ( $p < .002$ ) when predicting supervisor rated job performance measured 3-12 months post-hire. Corrections for unreliability in the criterion and range restriction provide a predictive validity of 0.52 ( $p < .002$ )

# CASE STUDIES

**Federal Regulatory Authority** predicts job performance and career advancement  
<http://app.revelian.com/cs-government-cog-ability>

**Telecommunications Provider** predicts performance of call centre staff  
[app.revelian.com/cs-telecommunications](http://app.revelian.com/cs-telecommunications)

**Aviation Company** vastly improves training pass rates  
[app.revelian.com/cs-aviation-company](http://app.revelian.com/cs-aviation-company)

**Bendigo & Adelaide Bank** reduces unconscious bias and makes high-calibre hires  
<http://app.revelian.com/cs-bendigo-adelaide-bank>

**Emergency Services Provider** reduces sick days and compensation claims  
<http://app.revelian.com/cs-emergency-services>



# FAST, RELIABLE AND TRUSTWORTHY HR DATA

Our assessments give you access to the insights you need to make informed decisions about your people and organisational culture.

CONSTRUCT	REVELIAN ASSESSMENTS	WHAT IS MEASURED	WORKPLACE OUTCOMES
<b>Aptitude, cognitive ability</b>	<ul style="list-style-type: none"> <li>• Cognify</li> <li>• Cognitive Ability Test (RCAT)</li> <li>• Separate ability tests</li> </ul>	<ul style="list-style-type: none"> <li>• General cognitive and problem-solving ability</li> </ul>	<ul style="list-style-type: none"> <li>• Better job performance</li> <li>• Reduced turnover (involuntary)</li> <li>• Improved training outcomes</li> <li>• Increased productivity</li> </ul>
<b>Behaviour and personality</b>	<ul style="list-style-type: none"> <li>• Behavioural Profile (RBP)</li> <li>• 16 Personality Factors*</li> </ul>	<ul style="list-style-type: none"> <li>• Style and behaviour at work</li> </ul>	<ul style="list-style-type: none"> <li>• Team understanding</li> <li>• Team effectiveness</li> <li>• Reduced turnover (voluntary)</li> <li>• Improved communication and teamwork</li> </ul>
<b>Emotional intelligence</b>	<ul style="list-style-type: none"> <li>• Emotify</li> <li>• Emotional Intelligence Test (MSCEIT)</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying, understanding and using emotions at work</li> </ul>	<ul style="list-style-type: none"> <li>• Improved leadership performance and customer satisfaction</li> <li>• Improved communication and teamwork</li> </ul>
<b>Work-related values</b>	<ul style="list-style-type: none"> <li>• Values Inventory (RVI)</li> </ul>	<ul style="list-style-type: none"> <li>• Organisation and cultural fit</li> </ul>	<ul style="list-style-type: none"> <li>• Improved organisational commitment, engagement and tenure</li> <li>• Reduced turnover (voluntary)</li> </ul>
<b>Preferences</b>	<ul style="list-style-type: none"> <li>• Work Preferences Profile (RWPP)</li> </ul>	<ul style="list-style-type: none"> <li>• Person-job fit</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced turnover (voluntary)</li> <li>• Increased job satisfaction and engagement</li> </ul>
<b>Safety behaviour</b>	<ul style="list-style-type: none"> <li>• Work Safety Assessment (RWSA)</li> </ul>	<ul style="list-style-type: none"> <li>• Safety attitudes and behaviours</li> </ul>	<ul style="list-style-type: none"> <li>• Improved safety motivation and participation</li> <li>• Reduced LTIs, MTIs and work cover claims</li> </ul>
<b>Integrity and reliability</b>	<ul style="list-style-type: none"> <li>• Work Reliability Scale (RWRS)</li> </ul>	<ul style="list-style-type: none"> <li>• Attitudes to counterproductive behaviours</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced incidence of behaviours such as fraud, theft, dishonesty, shrinkage, absenteeism</li> </ul>
<b>Skills Tests**</b>	<ul style="list-style-type: none"> <li>• Basic Skills Test</li> <li>• Computer Literacy &amp; Internet Knowledge</li> <li>• Microsoft Excel</li> <li>• Microsoft Word</li> <li>• Microsoft PowerPoint</li> <li>• Typing Test</li> <li>• Ten Key Test</li> </ul>	<ul style="list-style-type: none"> <li>• Skills and abilities</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced training requirements</li> <li>• Increased productivity</li> </ul>

\*The 16 Personality Factors assessment is only available in Australia and New Zealand

\*\*Available in 2021

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below the surface.

 [revelian.com](https://revelian.com)