Predictive Validity of the EvaleX Assessment System

Fifteen Major Studies

OMT
Organisation and Management Technology

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Executive Summary

Organisation and Management Technologies (hereinafter referred to as OMT) and EvaleX Intellectual Capital Management (hereinafter referred to as EICM) do continuous research into the psychometric properties of their full range of assessment systems. This paper will report on fifteen such studies.

EvaleX Talent Assessment System provides four major assessment solutions, geared for entry-level positions (EvaleX10), supervisory to junior management (EvaleX20), middle management (EvaleX30) and senior/top management (EvaleX40).

EvaleX is unique and differentiates itself in that it is at this point the only available system in the market that can combine six assessment centre simulations, 7 psychometric tools and the EvaleX Competence Inventory (for business and technical competencies) in one integrated internet based assessment session.

The high level view of the major studies and the one key finding in each are:

- **Study 1:** Study of 907 employees across 32 job types: EvaleX20 results correlate with performance: 0,59 to 0,66.
- **Study 2:** Study on the impact of the EvaleX20 assessment on the reduction of low performance: EvaleX20 predicts high/low performance with 87% accuracy.
- **Study 3:** Study of 868 high performers in a financial institution: Analysis of variance and regression analysis provides a correlation of 0,69 between EvaleX20 results and career velocity (position achieved), with 65% of the 68 dimensions assessed significantly differentiating between position levels.
- **Study 4:** Study of 602 managers' EvaleX40 results correlated with position level: 73% of all EvaleX40 dimensions show a trend line with ever increasing position levels with Average Competence correlating with Position level at 0,63
- **Study 5:** Study of 3,157 employees in a financial institution: Regression analysis provides a correlation of 0,57 between EvaleX20 results and position level achieved. Sixty nine percent of the EvaleX20 dimensions assessed correlate with position level at 0,01% significance.
- **Study 6:** Study of 1,566 EvaleX20 done for OMT international clients: 50 EvaleX20 dimensions accurately predict position level.
- **Study 7:** Predictive validity of the EvaleX Talent Classification: A 3 – 5 year follow-up on the talent classification indicates an 89% accuracy and provides thresholds for companies to benchmark their talent landscape against. Intellectual Capital Values derived from the talent algorithm correlates 0,53 with Position level.
- **Study 8:** Study of 157 managers in a financial institution: Intellectual Capital Value correlates 0,573 with position level and 0,44 with Performance.

- **Study 9:** Study of 306 managers' EvaleX40 assessment results: EvaleX Business Simulation managerial competencies correlated 0,593 with performance.

- **Study 10:** Batting average of successful appointments within a financial institution using EvaleX40 indicated that 90% of those recommended ended up in the top 20% of all staff in performance reviews, whilst 90% of those not recommended and appointed against EvaleX advice ended up in the bottom 20% of performers.

- **Study 11:** Construct validity of the Organisation Personality Construct Scale (OPCS) indicates eight personality factors.

- **Study 12:** Construct validity of the EvaleX40 Business Simulations assessing managerial competencies.

- **Study 13:** Study of 519 high and low performers show a correlation between the EvaleX Competence Inventory and performance as 0,33 for all positions and 0,50 for homogenous positions.

- **Study 14:** A study of Gender variances on the EvaleX20 Psychometric instruments indicated fairness and equality of scores among gender groups.

- **Study 15:** A Study of 100 managers' EvaleX40 assessment results correlated with Performance and Position level: Intellectual Capital Value correlated 0,677 with position level and Average competence correlated 0,567 with position level.

The conclusions are:

- As position levels increase in terms of complexity, so does the requirement for management **competence, strategic capacity and emotional maturity**. EvaleX40's EvaleX Business Simulation, measuring the strength of these three constructs, achieved very high predictive validity in this regard. The EBS proved to be very accurate in predicting at what level of work a person can potentially function.

- Different position levels require different levels of **cognitive functioning** in line with the increase of complexity. There exists a direct correlation between increase in position complexity and increase in cognitive capacity. This is a very powerful conclusion as both the BCT and OIS shows this. This is confirmed by multiple studies on different samples all yielding the same results.

- Potential to function at ever increasing levels of complexity is not only an issue of Cognitive functioning. Personality, Values, Styles and Interest also play a role in the statement about somebody's potential and talent. Multiple studies using different samples indicate that the **majority of EvaleX20 dimensions differentiate significantly between Position levels**.

- Across multiple studies, there exist a number of Personality, Values, Styles and Interest dimensions that always correlate with performance and position level. It is very significant that when for example Need for Control correlates with Position Level in one study, that that same finding is replicated and confirmed in multiple other studies using different samples and population groups. It speaks to the **"universality" of certain human characteristics** in their association with success as measured through high performance and through career advancement.

- The findings of all studies confirm the notion held for many years by OMT and EvaleX that a **holistic assessment solution** needs to be followed. Considering that the consistent predictors of performance and potential across all studies include cognitive dimensions, personality traits, work styles, values and interests it further confirms that **EvaleX20 presents a very powerful combination of assessment tools, each and every one with significant predictive ability**.

- The research strongly suggests that **each level of work requires a unique "constellation" of dimensions**. A coming together of traits, styles, values and interests that in that perfect combination or constellations produces high performance and potential.

- The studies discussed in this document serve to provide evidence of **EvaleX Assessment System's ability to predict both "performance" and "potential"**. Potential in terms of the ability to progress to ever more senior roles of management and to deal with increasing levels of complexity and performance in a given position type.

- The EvaleX Talent management module uses this research as a basis for defining the talent classifications of Platinum, Gold, Silver, Bronze and Iron. **Significant differences in the distribution of talent at each position level have been found**.

- When the assessment results of competencies from the EBS is combined with the assessment results of the psychometrics into an Intellectual Capital Value for each candidate, **correlations of 0,57 and 0,44** are achieved with Position Level and Performance respectively. In another similar study with a different sample of managers, Intellectual Capital Value for each candidate correlated 0,68 Position Level and 0,34 with Performance.

- Research into the predictive validity of the **EvaleX Competence Inventory showed a correlation of 0,33 to 0,50 between ECI results and performance** in a sample of 519 high and low performers. This finding makes a strong case for the assessment of Business and Technical competencies during selection and promotional decisions.

Introduction

The purpose of this paper is to present the reader with research indicating the predictive validity of the various EvaleX Talent Assessment systems.

Organisation and Management Technologies (hereinafter referred to as OMT) and EvaleX Intellectual Capital Management (hereinafter referred to as EICM) do continuous research into the psychometric properties of their full range of assessment systems. This paper will present the outcome of the various research studies.

Three important notes on the EvaleX research environment and approach are required.

1. Foundational research into the EvaleX Talent Assessment System has been done as part of a Masters dissertation and Ph.D. thesis. The importance of this is that the research was done under the supervision of the respective University Professors and as such, peer reviewed.

2. All the studies within our client organisations have been done by their respective Psychologists/ Psychometrists with assistance from EICM on the statistical analysis. In this way, they are noted as not only independently done, but also peer reviewed by them and their management teams.

3. In most of these cases the data was extracted by the client from the EvaleX system and provided to Dr. P. Nel at the University of the Orange Free State, a well-known statistician in the behavioural sciences, for analysis. The importance of this is that the research process was verified by both the client organisation and an external academic.

What is Talent and how is the validity of an assessment instrument in measuring it determined?

We talk about talent, but what is it? It is important to have some definition in mind so as to evaluate the suitability of a Talent Assessment Tool. Webster's dictionary defines talent as "any natural ability or power". Natural ability dictates your moment-by-moment reactions to your environment – it implies instinctiveness, immediacy and sustainability. Talent results in consistently recurring patterns of thought or behaviour. Knowledge and skills, on the other hand, imply learned behaviour.

From *dictionary.com*, we learn that talent is both "*a special natural ability, or a capacity for achievement or success*". In this way talent is "*anything that predisposes an individual to success in a position or organization*".

The EvaleX view of talent is as follows: "Talent constitutes a natural ability that manifests in behaviour and thought processes in dealing with critical life and work situations that result in high performance at the current level, but also in the ability to progress to dealing with work and life situations at ever increasing levels of complexity".

What then are the criteria for an assessment tool to predict talent?

Firstly, when the assessment instrument can, during research studies, statistically significantly differentiate between high and low performers. This we can call Validity in predicting performance, and when it can statistically significantly differentiate between performance at different levels of work. This we can call Validity in predicting potential (to perform at ever-increasing levels of complexity).

So two studies are required correlating assessment results with performance, but more critically, correlating assessment results with different levels of work.

Overview of the EvaleX talent Assessment Systems

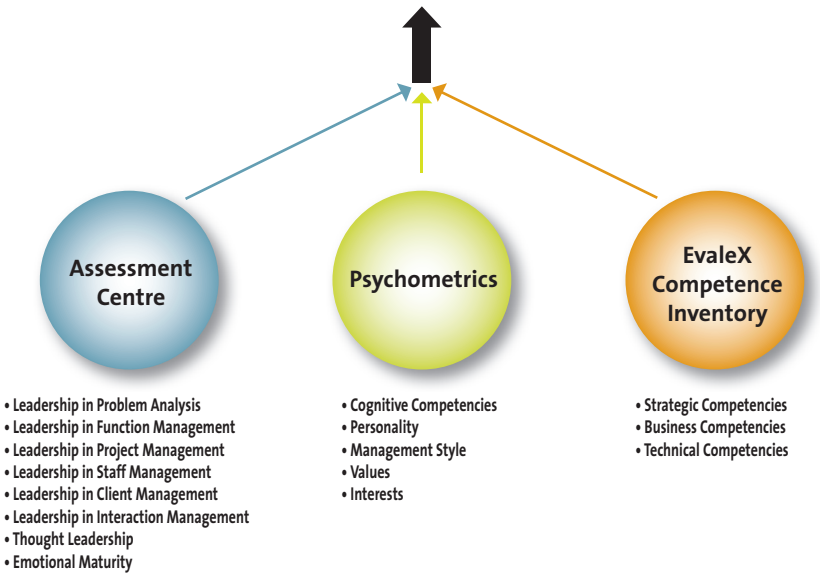
EvaleX presents its clients with a Talent Assessment approach for different levels of work within the organisation.

The EvaleX Talent Assessment system had its inception in 1980 and evolved over time with research and application. It was first written into a computer application in 1986, with revisions in 1992, then enhanced as an Internet based assessment tool in 2000, with constant upgrades and expansion. It now presents itself as one of the most advanced Internet based assessment platforms available.

EvaleX is the only assessment platform that integrates three major assessment technologies into one global Internet based solution. Assessment centre technology (6 management simulations) psychometrics (7 psychometric tools) and the EvaleX Competence Inventory (business and technical competencies)

It is presently the only assessment platform where the psychologist can create an integrated assessment session combining 6 Assessment Centre simulations/case studies and 7 psychometric tools that the candidate can complete in one session, via the Internet, providing a totally integrated report across all the tools.

Integration of 3 Technologies into One Assessment Session



The EvaleX40 consists of two main elements. An assessment centre (to determine competence in dealing with 6 critical management situations) and a battery of psychometric tools (to get a feel for the type of person and the way that they think). The difference between the processes lies in the fact that psychometric assessments are self-report mechanisms while assessment centers are scored by an external party. While somebody may, as an example believe that they have a high level of output (psychometric) we actually also need to measure their output (assessment centre). These elements are often different. Or they may believe that one should not structure too much when you

delegate (psychometric) but when delegation behaviour and competence in the assessment centre is observed, the candidate actually does structure quite a bit. For this reason we do not believe in using psychometrics only when determining talent. A good personality fit and high levels of intelligence does not always translate into high performance at high levels of complexity. The fact that the person is capable of strategic thought does not make him/her necessarily a good leader or manager that is why leadership capability (psychometrics) and competence (assessment centre) need to be assessed.

The EvaleX Business Simulation (Assessment Centre) consists of 6 simulations. It measures the candidate's ability to deal with 6 critical management situations:

- Leadership in General Management (Inbox)
- Leadership in Problem Analysis and Decision-making (Computer animated interactive exercise)
- Leadership in Staff management (Situational judgement test)
- Leadership in Client relationship management (Situational judgement test)
- Leadership in Interaction management (Role-play)
- Leadership in Project management (Business case)

The psychometric battery consists of:

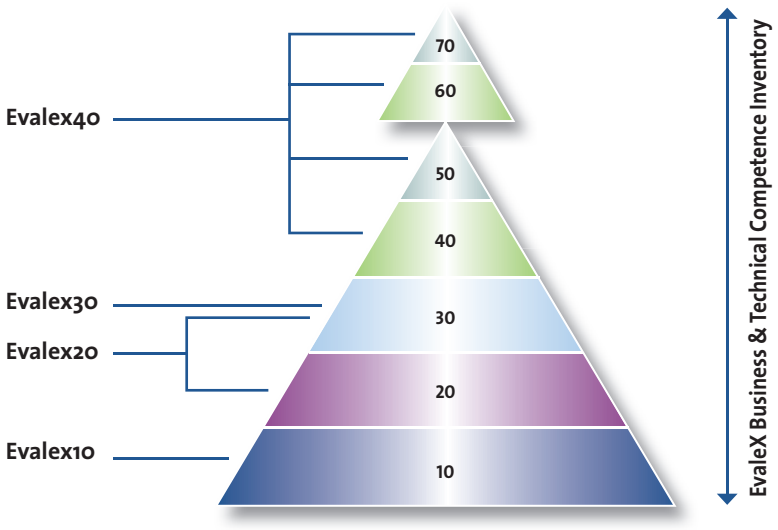
- Business Comprehension (business intelligence)
- Organisational Insight (knowledge)
- Personality
- Work-styles
- Values
- Interests

In total the EvaleX40 assesses over 100 dimensions in 1 day, looks at the person from 14 different angles and benchmarks against more than 7,000 other candidates from more than 2,000 other organisations. By clustering these dimensions we can get a reading on many different constructs, but more specifically on:

- **Leadership Competencies:** e.g. 22 simulation dimensions measured across 6 situations.
- **Thought Leadership:** e.g. 8 simulation dimensions measured across 4 situations as well as abstract reasoning from the Business Comprehension Test (BCT) and 3 dimensions from the Organisation Personality Construct Scale (OPCS).
- **Emotional Maturity:** e.g. dimensions such as Interactive Sensitivity and Motivational Behaviour from the assessment centre; Assimilated understanding and Contextual Reasoning from the BCT and various personality dimensions such as Optimism, Emotional control and Affiliation.
- **Cognition:** e.g. 5 dimensions from the BCT as well as many dimensions from the assessment centre, like Judgement and Business Acumen.
- **Style:** From the psychometrics general style of interaction with the environment is defined. This includes the Organisation Personality Construct Scale measuring Personality, Work Styles and Values as well as two Interest questionnaires. Examples: Leaderships style (Initiating, Integrative or Change orientated), Problem solving style, Goal direction, Implementation style, etc.

The diagram below indicates the different assessment systems aligned with the different levels of work.

Levels and Types of Assessment



The next diagram indicates the different assessment instruments combined for each level.

Levels of Assessment

Assessment Type	EvaleX 40	EvaleX 30	EvaleX 20	EvaleX 10
EvaleX Business Simulation: Problem analysis, General management, Project management, Business case development, Staff mangement, Client management, Interaction magement	EBS			
EvaleX Business Simulation: General management, Project management, Staff management, Client management	EBS	EBS		
Cognitive (Organisational Insight Scale)	OIS	OIS	OIS	
Values (Organisation Personality Construct Scale)	OPCS	OPCS	OPCS	
Strategic Interest (Work Type Orientation Scale)	WTOS	WTOS	WTOS	
Cognitive (Business Comprehension Scale)	BCT	BCT	BCT	BCT
Work Styles (Organisation Personality Construct Scale)	OPCS	OPCS	OPCS	OPCS
Personality (Organisation Personality Construct Scale)	OPCS	OPCS	OPCS	OPCS
Operational Interest (Work Orientation Scale)	WOS	WOS	WOS	WOS

The diagram below shows all the management simulations included in the EvaleX Business Simulation (EBS), which is the mainstay of the EvaleX30 and EvaleX40 assessment process.

EvaleX40 Managerial Assessment Centre

The EvaleX30 and EvaleX40 involves the EvaleX Business Simulation, a virtual, internet based AC where managers are presented with simulated managerial situations covering the following leadership dimensions

- Leadership in Problem Analysis and Decision Making situations: 4 competencies are assessed
- Leadership in Function and General Management situations: 6 competencies are assessed
- Leadership in Project Management: 4 competencies are assessed
- Leadership in Staff Management: 4 competencies are assessed
- Leadership in Interaction Management: 5 competencies are assessed
- Leadership in Client Management: 5 competencies are assessed
- Emotional Maturity: 4 dimensions
- Thought Leadership: Strategic capacity: 9 dimensions

The Process

- Candidate logs into the EvaleX website and deals with the managerial situations presented through case studios aimed at simulating the managerial environment
- Assessor observes the behaviour and translates the observation to codes
- Observation data and codes translated inro raw scores of performance for each competency within each simulation exercise
- EvaleX System compares performance scores to 6,000 other managers in the data base and expresses the candidates competencies in a Percentile Rank when generating the report
- In this way a manager's competencies are compared to that of management teams in other organisation, industries and countries, giving powerful benchmarking information

The diagram below shows all the assessment instruments included in the EvaleX20 assessment process. Should more information be required, please contact us.

evalex
a behavioural analysis system

The generic name for a battery of assessments

- ***Technical Competencies:*** Library of about 450 technical competencies
- ***Cognitive Functioning:*** Business Comprehension Test (5 dimensions)
- ***Cognitive Functioning:*** Organisational Insight Scale (8 dimensions)
- ***Personality:*** Organisation Personality Construct Scale (13 dimensions)
- ***Management/Work Styles:*** Organisation Personality Construct Scale (8 dimensions)
- ***Values:*** Organisation Personality Construct Scale (9 values)
- ***Interests:*** Work Orientation Scale (16 interest fields)
- ***Interests:*** Work Type Orientation Scale (9 interest fields)

All required assessments have been proven to be reliable and valid and have been registered with the HPCSA.

Study 1: High/Low Performance study (894 employees)

The Concept of a High/Low study

The reason why most organisations choose to do some form of assessment (be it cognitive, personality, EQ, business competencies or any other construct) is to assess the probability that the person they wish to appoint or promote will perform well. Indeed, that this person will turn out to be a high performer or will advance in their career.

It follows then that any form of assessment must have predictive validity. What is meant by predictive validity is for the tool or instrument results to correlate highly with an index of performance. Any criterion can be used, but the most frequently are Performance, Position Level or Career Advancement. OMT has developed a methodology called High/Low Studies to calculate the predictive validity of the EvaleX20 behavioural assessment system.

It is known that certain traits or characteristics determine successful performance in a given position. Conversely, the characteristics determining successful performance is unique to a specific position type and the characteristics defining performance in this position may not necessarily define performance in another position.

In fact, what our research indicates is that a constellation of traits or characteristics usually predict successful performance for most positions. The individuals who seem to be successful in a particular role are those where the combination of personality traits, management/work styles, cognitive functioning, values and interests come together in the constellation required by the position.

This is where the High/Low study concept comes into its own: It can define this unique constellation for any position under discussion.

For a particular position type, such as Claims Assessors in an insurance industry, Travel Consultants in the travel industry, Business Bankers, Tellers or Customer Service Consultants in Banking, Restaurant Managers in the hospitality industry, Field Marketing Executives in the cellular telephony industry, a sample of high performers is identified as well as an opposing sample of low performers. Average performers are discounted.

Once a group of employees in a particular role has been assessed through EvaleX20, management compiles a list of the high and low performers based on agreed upon performance indicators that are objective and measurable. Between 3 and 5 indicators are advised and each must be measurable or where subjective, the majority of the management team must agree to it being high or low. Examples are: New customer acquisition numbers, client retention numbers, number of transactions processed per day, sales figures, claims figures and other more strategic indicators.

The high performing group's results across all dimensions assessed are then averaged and the same is done for the low performing group. The two profiles are super-imposed to highlight the differentiating dimensions. Having done more than 50 such studies, on average 20 to 30 differentiating dimensions are usually found. Only those that show a statistical significant difference between the two groups

remain. Some correlate positively and others negatively. For each group, the positive correlating factors are summed and averaged. The same is done for the negative correlating dimensions. The negative average is then subtracted from the positive average. This results in a Net Average Score per group. Usually a range between -20 to +20 is found. An acceptable cut-off between these is defined. Call this the "cut-off threshold" between high and low performers (usually the midpoint).

At this point the accuracy with which the assessment battery (EvaleX20) would have predicted the high and the low performers needs to be determined.

This is done by doing the same calculation on an individual level, then simply calculating how many high performers score above the cut-off-threshold as a proportion of all high performers and conversely, how many low performers score below the cut-off-threshold as a proportion of the low performers.

Research Methodology

The results of 32 such studies were combined and are reported on in this research paper. This involved 894 employees across 32 different position types.

Once combined the *Mann-Whitney-U* statistical formula was applied to calculate the significance of differences between the two groups as well as the correlation coefficient.

The *Mann–Whitney U* test (also called the *Mann–Whitney–Wilcoxon (MWW)* or *Wilcoxon rank-sum test*) is a non-parametric (arbitrary sample sizes) statistical hypothesis test for assessing whether one of two samples of independent observations tend to have larger values than the other. It is one of the most well-known non-parametric significance tests by Henry Mann and his student Donald Ransom Whitney. It is particularly useful where the criterion score (in this case Performance) is dichotomous (high-versus-low) rather than ordinal (according to a continuum of performance) and where the sample sizes are small.

Findings

Two calculations were done. The first, calculating the *Mann-Whitney-U* per group or position type. The second, calculating some sort of average across all studies. This second calculation is not the purist, yet gives some indication of predictive validity across all 32 studies.

The calculations for each individual study (intra-group) of the 32, were within a range of 0,59 to 0,66, with the average being 0,63.

A correlation of 0,63 in psychometric research is extremely high and confirms the ability of EvaleX20 to predict future performance. The important conclusion is that Evalex20 assessment system consistently predicted performance in each and every one of the 32 studies.

The reader's attention is drawn to the following in terms of the integrity of the research. In every one of the 32 studies, the client company indicated who the high and low performers were. The client company had access to the EvaleX system and could draw the reports of these individuals and average the scores themselves to ensure accuracy. The respective management teams in all 32 cases met and the detailed results were presented in Excel format and the calculations verified by them, particularly that the high performers were indeed high performers and the low performers were

indeed low performers. They then participated in defining the cut-off-threshold and calculating how many high/low performers scored above and below this threshold.

The results of all 32 studies were combined and the outcome of the combination is seen in the table below. The table below follows the different steps in the calculation of the *Mann-Whitney-U* test for significance.

Mann Whitney U Test for Significance

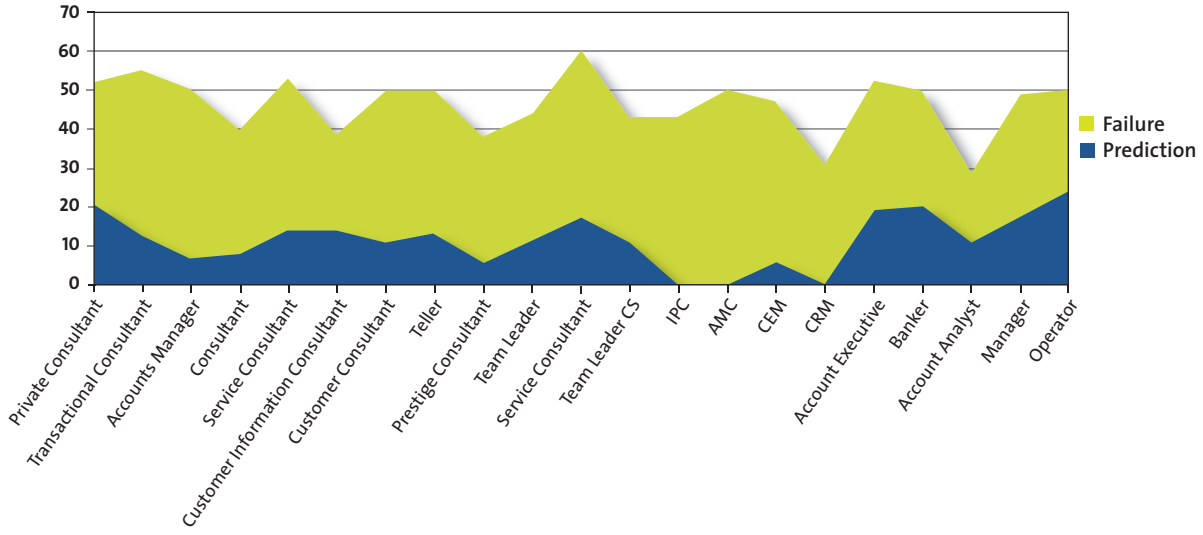
Calculation 1	**Proportions**		
		Cases high performance (total number of high performers above and below median)	
	Total Cases (always the same as median used above and below which 50% fall)	N	%
High Half (cases above median)	447	380	85,0
Bottom Half (cases below median)	447	96	21,5
Total Cases	**894**	**476**	
Calculation 2	Differences between proportions	0,64	
Calculation 3	Proportion "superior" entire group	0,53	
Calculation 4	Proportion "other" of entire group	0,47	
Calculation 5	Prop Sup x Prop Other x 4	1,00	
Calculation 6	PHI correlation: Calc 2 / Calc 5	0,63	
Calculation 7	Calc 6 x Calc 6	0,40	
Calculation 8	Total N	894	
Calculation 9	CHI squared: calc 7 x calc 8	357,85	

Study 2: EvaleX20 ability to reduce the incidence of low performance

Study two takes the results of study one to a commercial level. It includes the 32 high/low studies including 894 employees across 32 different position types.

The graph below shows the results of 21 such studies (21 different positions) within a South African retail bank. On average EvaleX can predict if a person would be a high performer or a low performer to an accuracy of 87%.

Decrease in the Appointment of Low Performers



The graph above indicates, for each position type, the percentage of low performers that were appointed using no assessment (green) and then the percentage of low performers which would have been appointed (blue) if you did use the EvaleX instruments (EvaleX20 and EvaleX Competence Inventory). The reader will notice a dramatic decrease in the number of low performers.

As an example, consider the Service Consultant in the graph above. Sixty percent were classified as performing below the performance standards and not at an optimum level. Using EvaleX20 and the ECI, the incidence of low performance would have been reduced from 60 to 15%.

Consider for a moment the commercial implications of this. Consider how many Service Consultants a large banking organisation employs. Reducing the number of low performers from about 50% down to about 10%, an 80% reduction in low performers must have a huge impact on the reduction of the cost of process and improvement in customer service.

Study 3: High Performer analysis; Potential to function at a particular position level (870 high performers)

In another study a large sample of 3,157 employees in a financial institution who all completed the EvaleX20 assessment process were involved. From this sample, 870 employees who consistently performed well above the average over a three-year period (no dip in performance; consistently high for 12 quarters) and who functioned at different position levels were isolated.

The purpose was to see how EvaleX20 could predict successful functioning at different job levels (or levels of complexity) when the sample contained only high performers.

The client provided OMT with the spreadsheet containing the names of all 870 employees, their assessment results and their position levels. The spreadsheet was forwarded to Dr. P. Nel, Head of the Department of Industrial Psychology at University of the Free State for statistical analysis. The results are as follows:

The table below indicates the number of managers at each of 5 position levels.

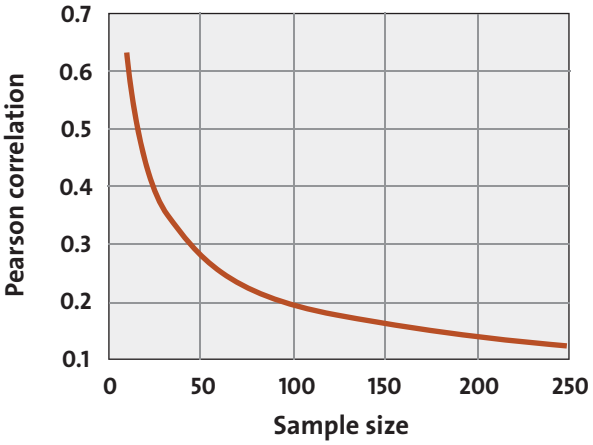
Position Levels From Junior (2,0) to Most senior (6,0)	Frequency	Percent	Cumulative Percent
2.00	129	14.8	26.4
3.00	186	21.4	47.8
4.00	204	23.4	71.3
5.00	133	15.3	86.6
6.00	117	13.4	100.0
Total	**870**	**100.0**	

Of the **68 dimensions** assessed across the **7 instruments**, **46 showed a significant difference between groups at different job levels** at a significance level of .01 or better.

When a Multiple Regression across these 46 dimensions was performed, to determine incremental validity, a correlation with job level at .695 was found.

Correlation coefficients and significance levels: What does it mean?

In terms of the interpretation of correlation coefficients, the reader is reminded that the actual quantum of the correlation must be seen in relation to the size of the sample. The larger the sample, the smaller a coefficient needs to be at a given level of significance as shown in the diagram below, taken from a Statistical textbook.



A statistically significant finding is one that is determined to be very unlikely to happen by chance. Statisticians are able to calculate the likelihood that any observed relationship between two variables (as indicated by any number of cases) could have happened by chance (or random variation). If it is calculated that there is less than a one in twenty chance (.05 or 5%) that the observed relationship could have happened by chance, the findings are designated as significant. If there is less than a one in one hundredth chance (.01 or 1%), they are designated as highly significant. Significance is influenced by the number of cases in a sample and the observed range (difference) of the sample. Simply put, you're more likely to be sure the differences one observes from a sample are accurate for the whole population if there are many cases and large comparative differences in the observed relationship between a specific set of variables. This text indicates significance by placing one or two asterisks (*) after the Pearson's Correlation.

Results of the study.

The Bar chart below provides an overall perspective. It indicates how many dimensions of the 68 assessed during the EvaleX20 showed significant differences between employees at different position levels (significance level of 0,01%).

EvaleX20 Assessment System

44 of 68 dimensions assessed correlates significantly with position level
(868 high performers) (0,01 level of significance)

During the EvaleX20 assessment process, the candidates completed 7 questionnaires, covering the issues of Cognitive Functioning, Personality, Work Styles, Values and Interests providing data on 68 different dimensions. This translates to 65% of the EvaleX20 dimensions correlating significantly with position level.

The table below indicates the same results according to the instrument used.

Number of EvaleX20 dimensions with Predictive Validity	Dimensions Significant at 0,01 level	Total number Dimensions
Cognitive: BCT and OIS	12	13
Personality (OPCS)	7	13
Values (OPCS)	6	9
Work styles (OPCS)	6	8
Interests (WOS & WTOS)	15	25
Dimensions	46	68

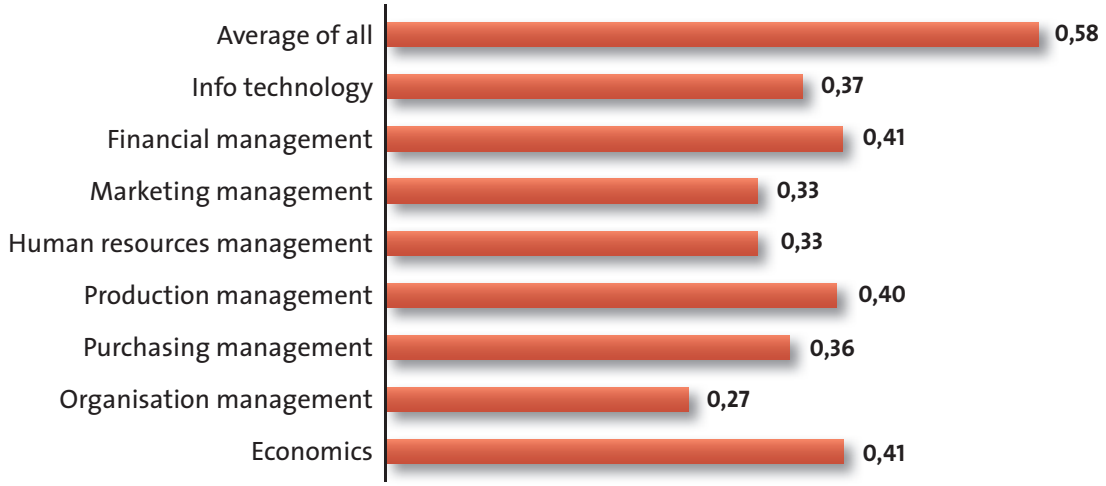
EvaleX20 includes two cognitive tests. The Business Comprehension Scale (BCT) measures Abstract Reasoning, Deductive Reasoning, Numerical Reasoning, Contextual Reasoning and Assimilated Understanding. The Organisation Insight Scale (OIS) measures insight into and knowledge of a range of business functions.

What the results for the BCT show are that Abstract Reasoning, Deductive Reasoning and Numerical Reasoning have the largest predicted validity. What this indicates is that for each successive level a higher level of cognitive functioning is required and the BCT's ability to measure the difference accurately. Both the correlation study and analysis of differences between the performances of the different work levels supports this finding. This is a critical point in substantiating the BCT's ability to predict at what level of work the candidate can function successfully.

The Organisation Insight Scale is the second Cognitive test in the EvaleX20. The average score on all sub-tests correlates at 0,58 indicating that to advance from one position level to the next a greater insight into some key business functions are required. There is thus a commensurate increase of knowledge associated with each successive level of position.

Organisation Insight Scale N=868

For 0,01 significance: r>0,10
8 of 8 constructs significant at 0.01 confidence level



The results further prove the OIS capability to predict at what level a person is likely to function effectively.

Of the 13 dimensions measured through the Organisation Personality Construct Scale, seven correlated significantly with position level and can be associated with career progression.

The findings indicate that those people who tend to be successful in this financial organisation, in that they were promoted to higher levels of functioning and perform better than most others at that given level, are characterised by:

- Need for Challenge: Accepting responsibility, driving for results, stretching themselves to the requirements.
- Need to Control: A drive to take charge, control and influence their environment, people, situations and events.
- Need for Assertion: Asserting own point of view, prepared to defend direction, plans and ideas.
- Lower need for Self-development and Task focus.

The OPCS also assesses preferred Management and Work Styles. Six of the eight styles showed a significant correlation with Position level. This is indeed a very significant result for a psychometric instrument. Apart from the fact that the instrument can predict the level at which a person can function it indicates what the characteristics are of those within the organisation that tend to be promoted to higher-level positions. They are characterised by:

- Judge Style: Analysing data, critical thinking, and contemplating actions.
- Initiating Management Style: They take charge, initiate action and shape their environment.
- Integrative Management Style: They tend to involve all role players, engineer buy-in and manage through consensus.
- They do not prefer the Style of the Completer; attention to detail, follow through and finishing.
- They do not prefer the Style of the Supporter; helping others to achieve, dealing with feelings and emotions.

The third and final sub-scale of the OPCS is Values. Six of the nine values correlated significantly with Position Level. This shows both the sub-scale's ability to differentiate between staff at different position levels as well as the value system regarding key management issues of those that tend to succeed within the Bank at more senior levels.

Those that function successfully at higher levels of work within the organisation tend to:

- Believe that being uniquely different, with un-conventional methods and solutions leads to success.
- Believe that in finding solutions to problems, a longer-term strategic focus rather than a short term operational focus will be best.
- Believe in an urgent, fast paced approach as opposed to a relaxed sense of time.
- Believe that an expansive expenditure orientated approach is more successful than a cost conscious approach.
- Believe that a one-on-one exclusive style, rather than a wide networking style of communications, engaging a broader audience, is more effective.
- Believe that when it comes to decision-making one needs to be decisive and involving too many in the process slows it down.

The EvaleX20 assessment system includes two Interest Questionnaires. The WTOS measures interest in work activities normally performed at work levels 4 and 5, whilst the WOS measures interests in work activities normally performed at work levels 1 – 3.

The WOS seems to be more effective in predicting position level (11 of 16 correlating significantly) than the WTOS with 4 of the 9 interest fields correlating with position level.

Considering the Work Type Orientation Scale, those that perform better than others at successively higher levels of complexity, tend to like work that involves:

- Conceptualisation: Considering products, markets, competitors and conceptualising trends, differences, concepts.
- Operations control: Being in control of a business unit, project or core process.

They do not seem to like getting involved with administration, process and technology.
Considering the Work Orientation Scale, measuring interest in activities mostly at work levels 1-3,

those that tend to perform well at ever increasing levels of complex work, tend to like work that involves:

- Strategic thinking: Thinking about the future, formulating strategies and plans.
- Inspiring others: Articulating a future that all can buy into.
- Entertaining: Spending social time with their clients in a relaxed context, such as having lunch or a cup of coffee.

They do not seem to like work that involves largely administrative tasks such as:

- Issuing documentation.
- Stock control.
- Data capturing.
- Serving clients.
- Numerical.
- Designing work-flows.

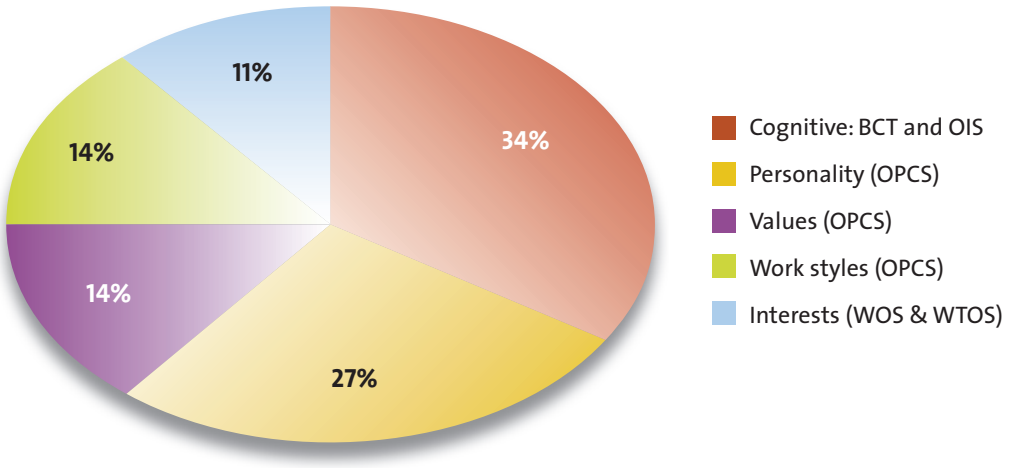
Which constructs predict performance the best?

Another outcome of the research was defining the predictive validity of the different tests in respect to each other. In other words, which constructs made the greatest contribution to the prediction, Cognitive capability, Personality, Work styles, Values, Interests or Business/Technical competencies?

The pie chart below shows the contribution each test made to the overall incremental validity coefficient of EvaleX20. It shows the proportion to which each contributed to the statistic. It is based on the number of dimensions per test that correlated significantly, then calculating the proportion of each to the total number of significant dimensions. The researchers are aware that there are problems with this approach, but it is none-the-less interesting and therefor reported here. One of the flaws would be that the tests all have un-equal number of dimensions and if one test is left out, the proportions would re-calculate to a different picture.

The take-out from this pie chart is that multiple tools must be used. Relying on only one or two instruments will not do the job. Performance is multi-facetted and is not simply dependent on one construct such as Cognition or Personality.

EvaleX20 Test Proportion Contribution to Prediction of Position Level
(based on number of dimensions significant at 0,01% level of confidence)



Study 4: EvaleX40 Assessment results of 602 managers across 5 different levels of work correlated with Position level.

The sample of managers used in this research project are characterised as follows:

Six hundred and two EvaleX40 assessments done by OMT for a wide range of clients for the purposes of Recruitment and Selection were included in this research project. These 602 could be viewed as a random sample representing managers in the process of switching employment from their current employer to a prospective employer.

The sample may well represent information about the socio-graphics of the South African job market at management level.

The sample sheds light on the range of age, position level, gender and race as normally found during the employment process. What is important to state at this point is that no assessments were excluded. All candidates assessed for employment or promotion within a specific time-frame were included. The time-frame ranges were November 2011 to November 2012.

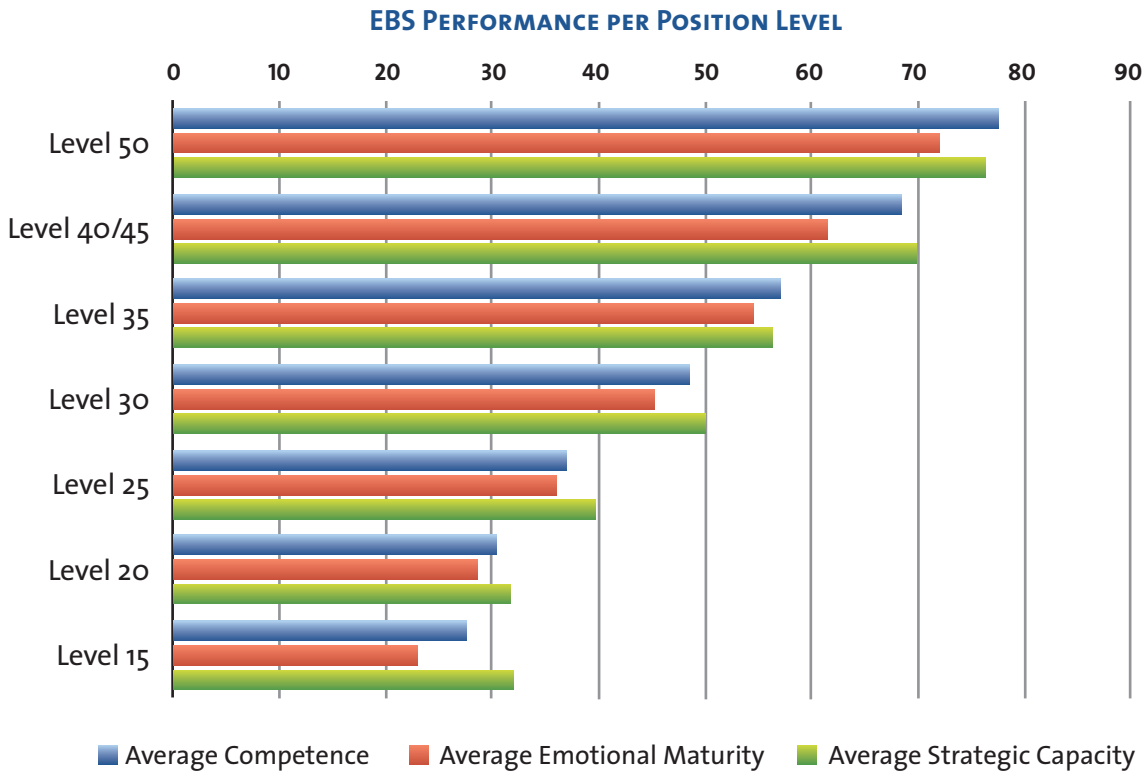
All candidates underwent the EvaleX40 managerial talent assessment offered by Organisation and Management Technologies and Deloitte.

The position level of the candidate was taken as the current role they were functioning in within their respective organisations. The 602 candidates represent 187 different organisations.

The breakdown per Position level is as follows (Jacques levels of work):

WORK LEVELS	15/20	25	30	35	40/50	
EQUIVALENT MNGMNT LEVELS	Supervisory	Junior Management	Middle Management	Middle/Senior Management	Senior Management	TOTALS
Assessment Count	156	181	172	74	19	602
Male % of level	56%	63%	63%	73%	64%	63%
Female % of level	44%	38%	37%	27%	36%	37%
African % of level	56%	37%	37%	41%	43%	41%
Coloured % of level	7%	13%	7%	5%	7%	9%
Indian % of level	18%	19%	18%	5%	21%	17%
White % of level	19%	31%	39%	49%	29%	33%

The first chart in this series concerns itself with how performance in the EvaleX Business Simulation (EBS) Assessment Centre varies according to position level. To this end, the performance of all leaders at every position level were averaged. The graph shows a clear distinction on the three main constructs of the EvaleX40 EBS, namely Average Competence, Emotional Maturity and Strategic Capacity for each consecutive management position or level of work. All three these constructs are made up of a number of competencies that would cover the total domain of the construct. Level 15 to 50 refer to the different management levels normally found in organisations according to the Stratified Systems Theory of Elliot Jacques. See the table above for cross-referencing.



The results clearly show a strong positive correlation between performance in the EvaleX Business Simulation and the Position level the individual is performing at.

These results prove the importance of Management Competence in assessing Talent and the undoubted ability of the EvaleX Business Simulation to measure it accurately.

The next graph shows how performance in the six different management situations differs according to position level. The conclusion here is that the situations (each represented by a case study) within which the competencies were assessed and the Average Competence, Emotional Maturity and Strategic Capacity derived show an equally clear correlation with position level.

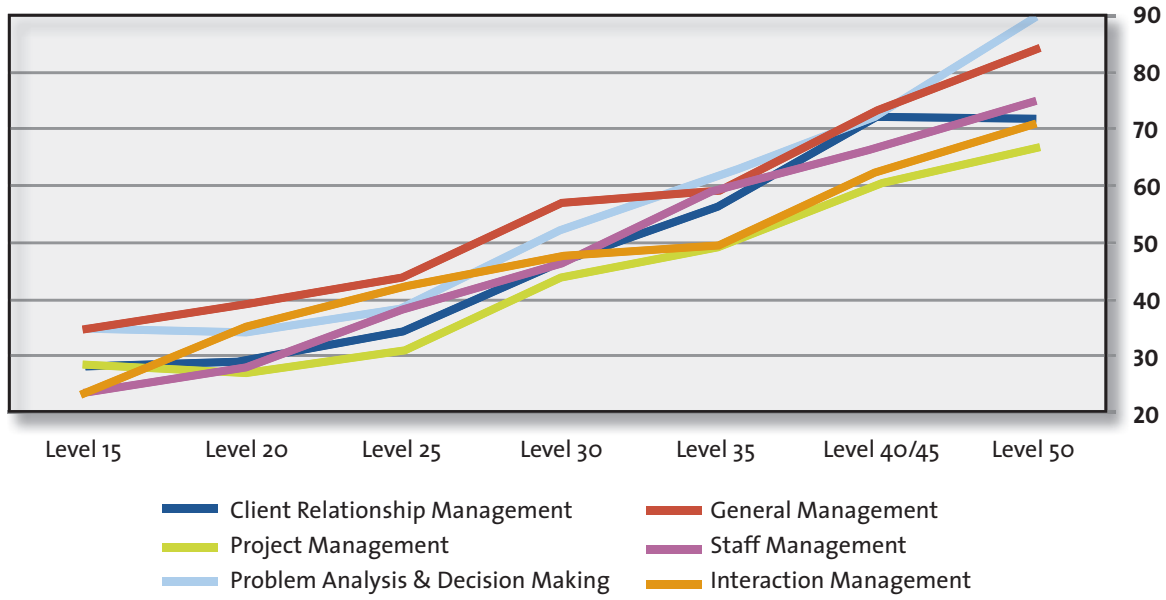
Given the main conclusion from the research, namely that managers who perform successfully at different management levels, also exhibit correspondingly different management competencies, in that the higher the position, the stronger the manifestation there-of, then it can also be concluded that the EvaleX40 Business Simulation is extremely accurate in assessing whether a manager has the potential for functioning effectively at any given position level.

This introduces the concept of ***Career Velocity*** which speaks of management potential defined as the potential to escalate to progressively higher levels of complexity in a given time frame or quicker than others.

The EvaleX40 EBS AC indicates specific and clear benchmarks for each position level in terms of competence requirement to function effectively at that level. Should a candidate during the assessment perform at a level commensurate with an aspired position level, then a prediction can confidently be made that the probability is high that this candidate's career will develop to that level. The algorithm combining Age with AC Performance level will indicate ***Career velocity***.

The graph below indicates the performance scores achieved by each position level on all critical situations and constructs.

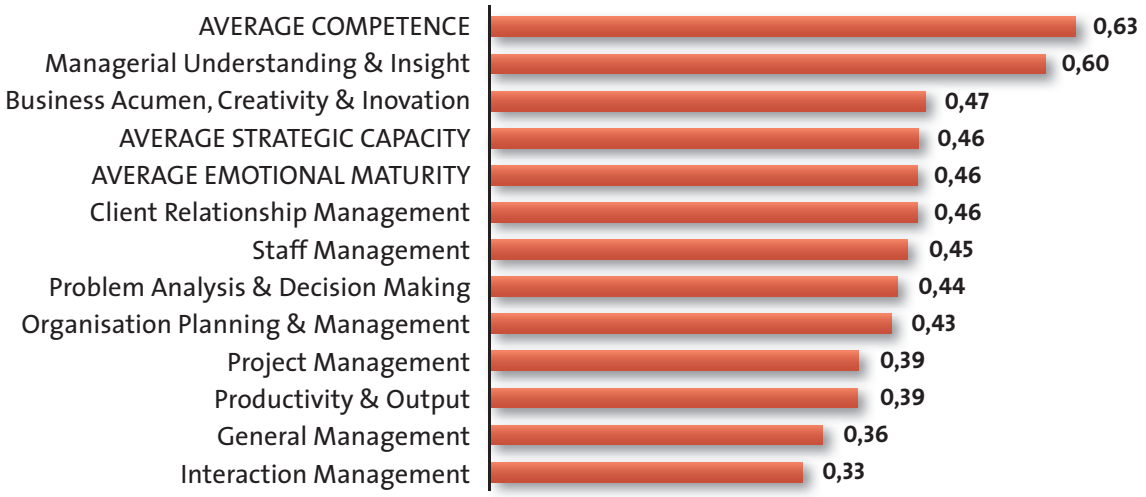
Performance in Six Management Situations



The next question would probably be whether these differences in performance at different position levels are significant. Pearson correlation coefficients were calculated for the three main constructs as well as for each management situation/case study and a number of other constructs.

The graph below indicates that Average Competence across all six situations produced a correlation of 0,63. Those who attend the industry leading annual conferences in this field, where academics from different Universities mainly from the USA, UK and Europe present their research findings would concur that most meta studies indicate correlations of around 0,25 to 0,35. Against this backdrop, 0,63 is extremely high and significant at the 99% level.

EvaleX Business Simulation Correlation with Position Level (602 managers)



Average Strategic Capacity and Average Emotional maturity at 0,46 is also very significant. So are all six situations.

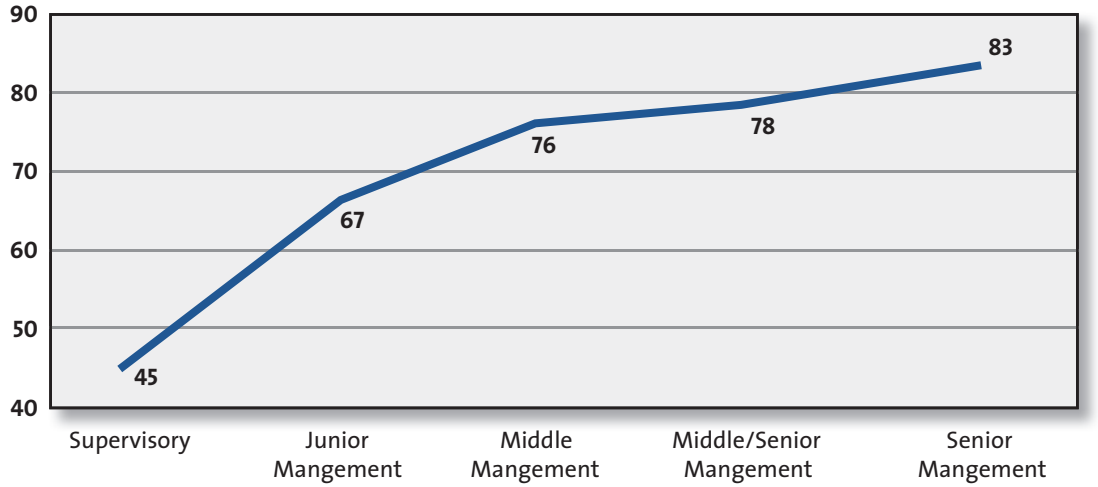
What is further very noticeable is the high correlations achieved when certain competencies of similar construct are combined across all six situations. Note in particular, Managerial Insight and Understanding, Business acumen creativity and innovation, Organisation planning and management and Productivity. The most striking of these constructs is Managerial understanding and Insight. It clearly highlights the critical importance and role of the cognitive dimensions of an AC in predicting career velocity. Typical dimensions combined in this construct are Fact-finding and analysis, Reasoning ability, Anticipation, Insight and understanding and Judgement.

The next section will deal with research findings regarding the Psychometrics included in the EvaleX40, which happens to be the same instruments included in the EvaleX20 assessment process. Note the following legend to the interpretation of the following graphs. The horizontal axis indicates position level as follows:

1. Supervisory
2. Junior management
3. Middle management
4. Middle/senior management
5. Senior management

The vertical axis in each case shows the assessment results on a 100-point scale. EvaleX uses percentile ranks to express the strength of a score. The assessment results of all candidates at a given position level were averaged. The charts that follow show the average score for each group on each assessed dimension.

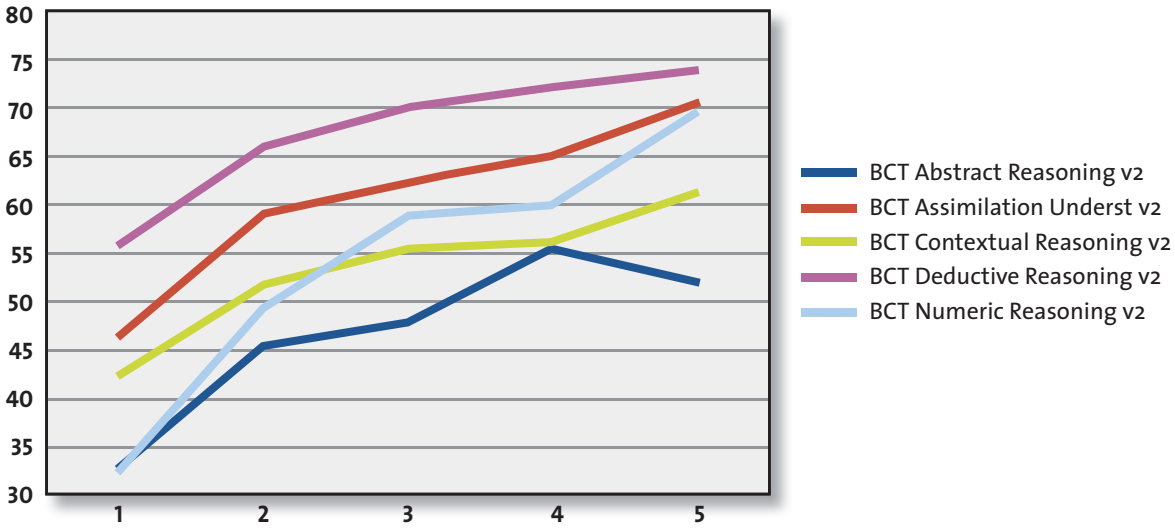
BCT Total Score of Sub-scales Relationship with Position Level



The first chart presents the data on the Business Comprehension Scale (overall score on all 5 sub-scales). The BCT aims to assess cognitive functioning. It has 5 sub-scales and the overall score on all 5 sub scales are presented.

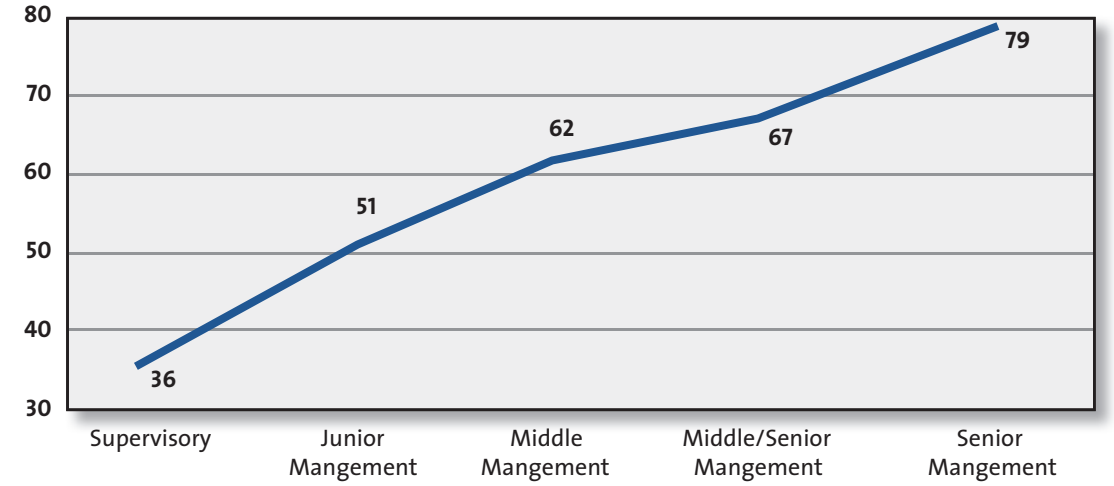
The next chart shows the relationship of the sub-scales with position level.

BCT Sub-scales Relationship with Position Level

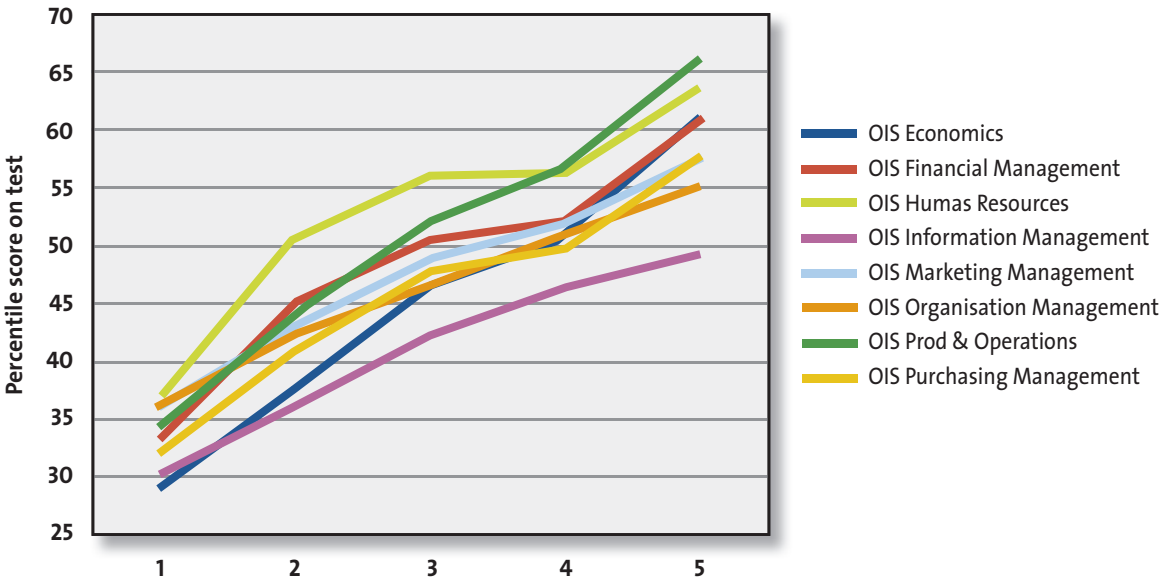


The chart below shows the results for each position level on the Organisation Insight Scale (OIS), followed by another graph indicating the scores obtained in the sub-scales. The OIS assesses the candidate's insight into and knowledge of key business functions and issues.

OIS Average Relationship with Position Level



OIS Sub-scale Relationship with Position Level

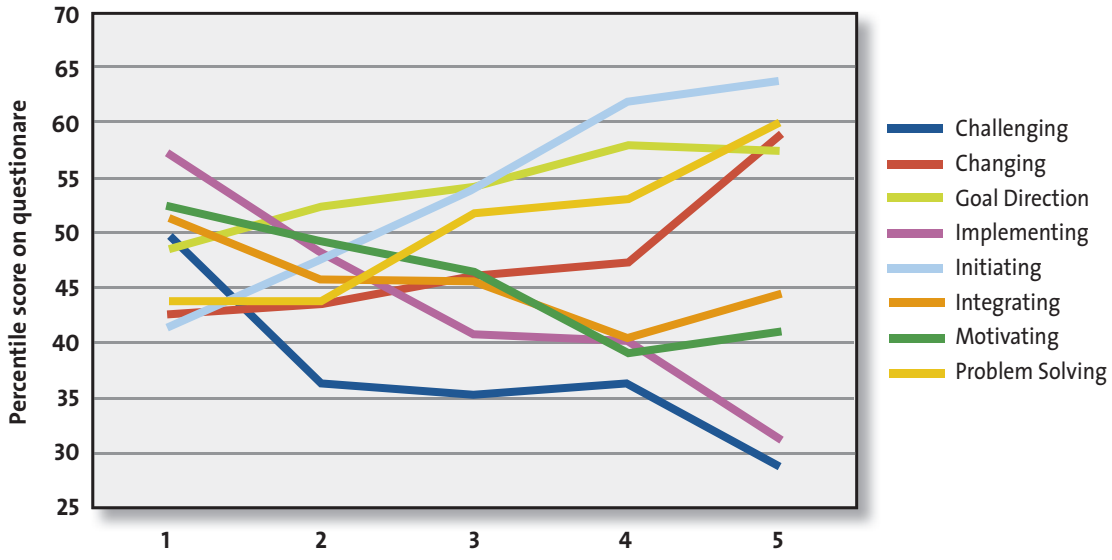


Having looked at Cognitive functioning, the next construct to discuss would be the Organisation Personality Construct Scale (OPCS) and it's three sub-tests, namely Personality, Work styles and Values.

Three graphs will be presented. The first is the data on the 8 main constructs of the OPCS which combines the Personality, Work styles and Values into these factors.

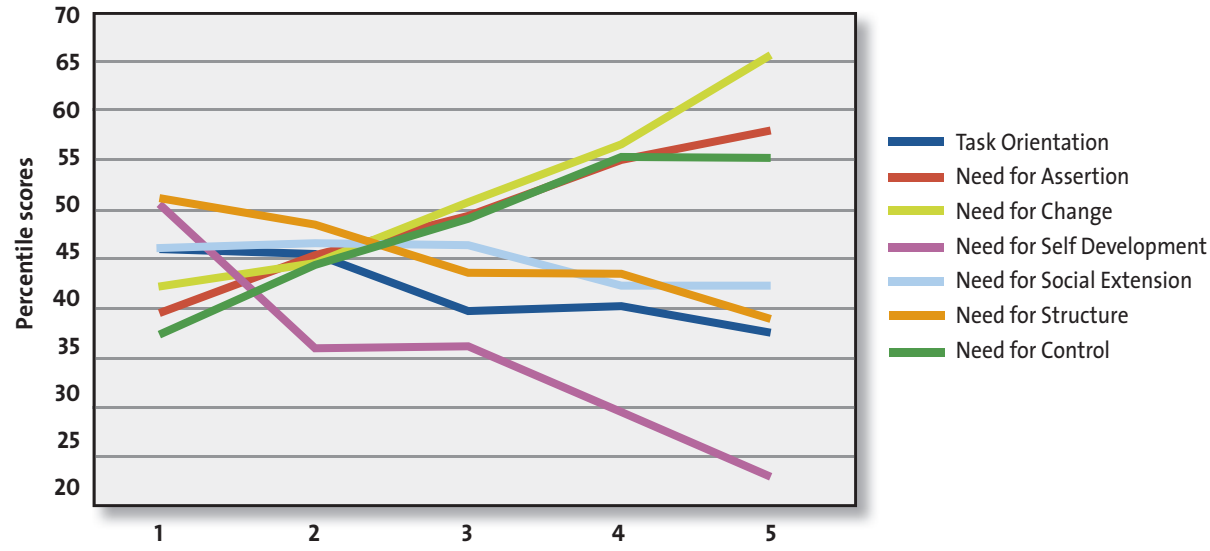
Then will follow the results of each of Personality (13 dimensions), Work styles (8 dimensions) and Values (9 dimensions). To keep the graphs managable, in some cases, only those dimensions that show a marked difference at different position levels will be included in the graphs.

OPCS Factors Correlation with Position Level



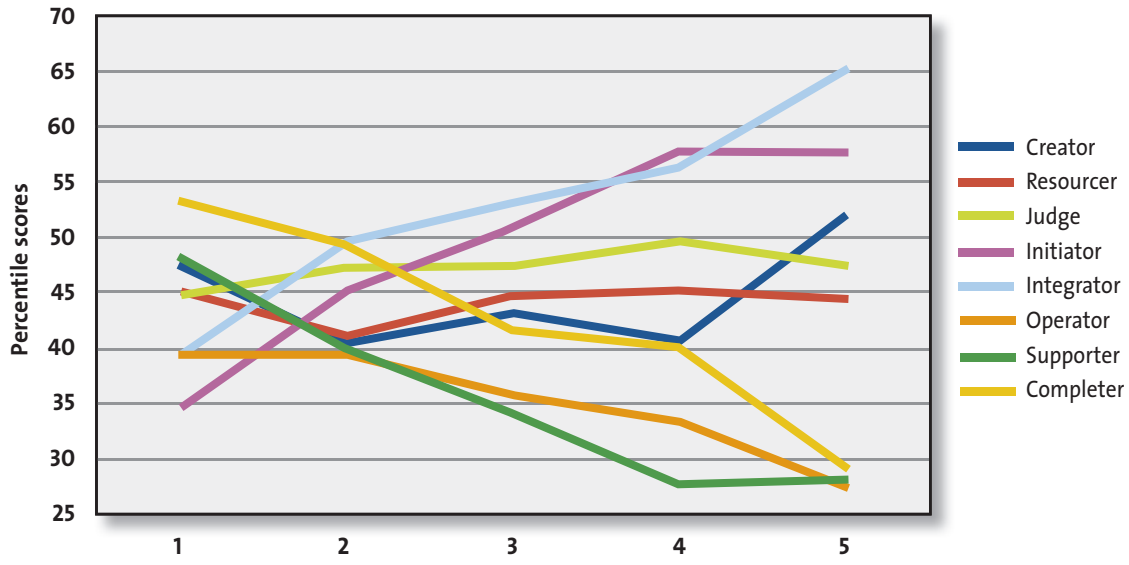
The results of the OPCS Personality fields are as follows:

OPCS: Personality Traits Relationship with Position Level (7 of 13 traits)



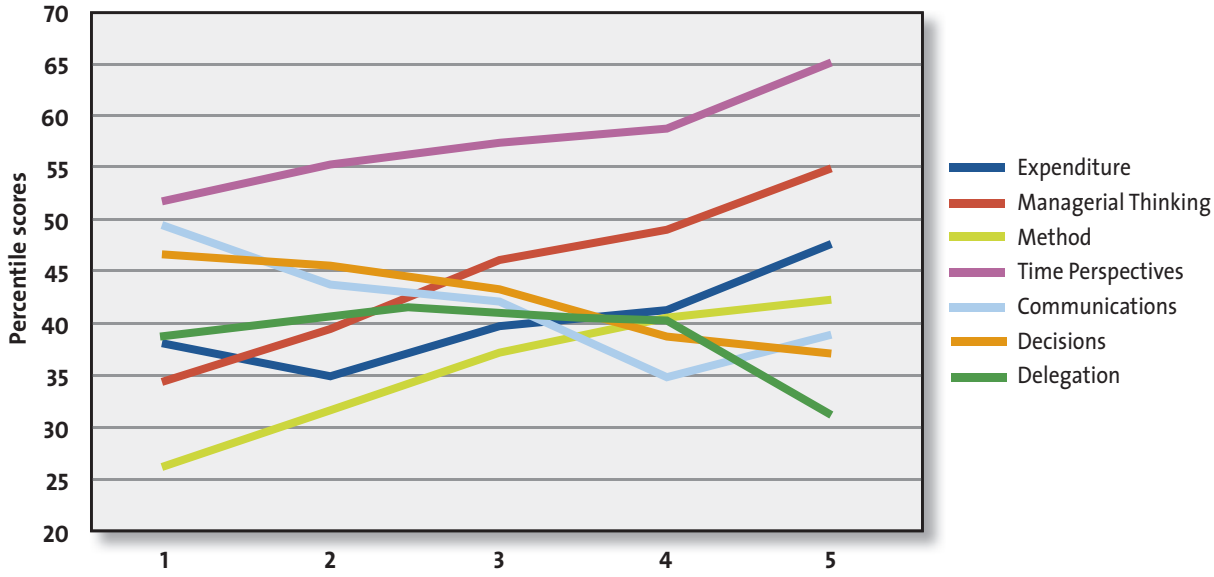
The results of the OPCS Work styles are as follows:

OPCS Work Styles Relationship with Position Level



The results for the OPCS. Values are as follows:

OPCS Values Relationship with Position Level

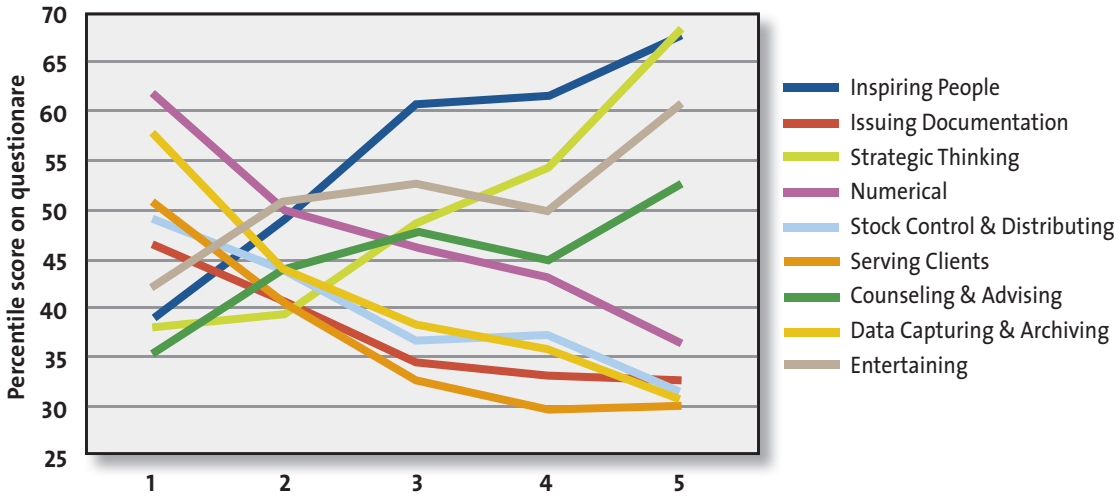


At this point, in terms of the assessment of a prospective employee for employment, or the consideration of somebody for a promotion, the key issues of Cognitive functioning, Personality, Work styles and Values have been dealt with. What remains would be the canididates Interests.

EvaleX presents two different Interest scales. The first one, the Work Orientation Scale (WOS) assesses the candidates interest in 16 work clusters mostly found in positions at work levels 1-3. The second, the Work Type Orientation Scale (WTOS) assesses the candidates interest in 8 works clusters normally found at work levels 3-5.

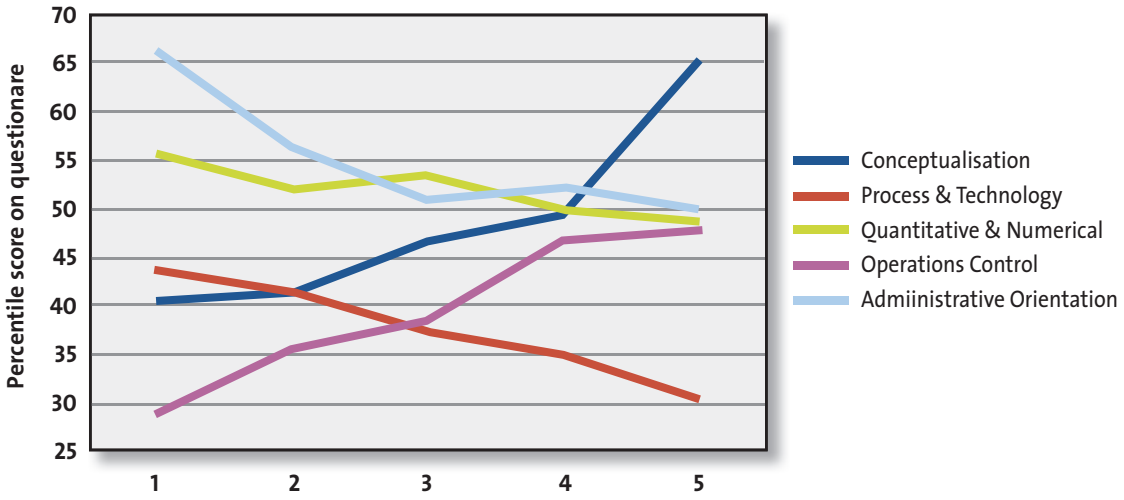
The results are as follows:

WOS: Interests Relationship with Position Level (8 of 16 fields)



In the case of the WOS, 8 of the 16 interest fields showed a marked difference between management levels. The other 8 dimensions are not shown in the graph. The same applies to the WTOS, where 5 of the 9 interest fields showed a strong relationship. The other 4 dimensions are not shown in the graph.

WTOS Interest Relationship with Position Level (5 of 9 fields)



Conclusions

The average scores per position level group shows a marked difference from level to level. This indicates that for each successive management level, a distinct progression in the case of positive relationships and reduction in the case of inverse is observed and leads to two conclusions.

The first is that for successful functioning at a given position level, a certain minimum level of Management competence, Strategic Capacity, Emotional maturity, Cognitive functioning, Organizational insight and unique constellation of Personality, Work style, Values and Interests are required.

The second conclusion that can be drawn is the EvaleX40 Talent Assessment system's ability to differentiate between position levels and therefor it's predictive validity in indicating who can function at which level.

Study 5: EvaleX20 Assessment results of 3,157 staff across 5 different levels of work correlated with Position level

This study used the original 3,157 staff prior to filtering out the 800 or so high performers. This means that in this sample, high, average and low performers are used to measure how EvaleX20 can predict the level at which an individual can function effectively.

Two statistical methods were used to analyse the data. The first a correlation matrix indicating which dimensions correlated significantly with position level. The second an Analysis of variance, calculating which dimensions indicated a significant difference between 5 position levels.

Two tables of data are presented. The first considering all dimensions that in both statistical analyses differentiated AND correlated significantly. The results indicate that 47 dimensions correlated significantly with position level. This constitutes 69% of all the EvaleX20 dimensions. For the BCT and OIS over 90% of the dimensions show a trend line with position level.

Dimensions that both correlate significantly AND differentiate (ANOVA) at level 0,01 confidence with Position Level

	Personality	Styles	Values	Strat interests	Ops interests	Business Comp Test	Org Insight Scale	All dims
Number of dimensions per sub-scale of OPCS	7	5	7	4	12	4	8	47
Total number of dimensions in scale	13	8	9	9	16	5	8	68
% of total scale	54%	63%	78%	44%	75%	80%	100%	69%

The second table shows the breakdown when the dimension not only correlated and differentiated significantly, but where the correlation coefficients were also all above 0,20. This analysis indicates that 38 dimensions predict position level, which constitutes 56% of all the EvaleX20 dimensions.

The EvaleX20 battery includes two Cognitive tests, namely the Business Comprehension Test (BCT) and the Organisation Insight Scale (OIS). The following correlations with Position level was found:

- BCT correlates with Position level at 0,38
- OIS correlates with Position level at 0,55

The Organisation Personality Construct Scale (OPCS) has 3 sub-scales, notably Personality, Styles and Values. The Styles and Values sub scales show particular power in predicting position level and should be a guideline to Organisation Psychologists not to rely on personality tests only.

Dimensions that both correlate significantly over 0,2 AND differentiate (ANOVA) at level 0,01 confidence with Position Level.

	Personality	Styles	Values	Strat interests	Ops interests	Business Comp Test	Org Insight Scale	All dims
Number of dimensions per sub-scale of OPCS that differentiates	4	4	5	4	9	4	8	38
Total number of dimensions in scale	13	8	5	9	16	5	8	68
% of total scale	31%	50%	56%	44%	56%	80%	100%	56%

The second very interesting finding is the way the EvaleX20 Interest questionnaires, the Work Type orientation Scale (WTOS) measuring Strategic Interests and the Work Orientation Scale (WOS) measuring Operational Interests both predict position level. Again many organisations' assessment batteries do not include any form of assessment of interests.

These findings are very similar to those of the sample of 870 high performers.

The findings indicate that those people who tend to be successful in this financial organisation, in that they were promoted to higher levels of functioning are characterised by:

- Need for Change: Driven by a need for new and better methods, process, situations; open to new ideas.
- Need to Control: Driven to take charge, control and influence their environment, people, situations and events.
- Need for Assertion: Asserting own point of view, prepared to defend direction, plans and ideas.
- Lower need for Self-development, Task focus and Structure.

The OPCS also assesses preferred Management and Work Styles. Four of the eight styles showed a significant correlation with Position level. This is indeed a very significant result for a psychometric instrument. Apart from the fact that the instrument can predict the level at which a person can function it indicates what the characteristics of those within the organisation that tend to be promoted to higher-level positions are. They are characterised by:

- Initiating management style: They take charge, initiate action and shape their environment.
- Integrative management style: They tend to involve all role players, engineer buy-in and manage through consensus.
- They do not prefer the style of the Completer; attention to detail, follow through and finishing.
- They do not prefer the style of the Supporter; helping others to achieve, dealing with feelings and emotions.

The third and final sub-scale of the OPCS is Values. Five of the nine values correlated significantly with Position level. This shows both the sub-scale's ability to differentiate between staff at different position levels as well as the value system regarding key management issues of those that tend to

succeed within the Bank at more senior levels.

Those that function successfully at higher levels of work within the organisation, tend to:

- Believe that being uniquely different, with un-conventional methods and solutions lead to success.
- Believe that in finding solutions to problems, a longer-term strategic focus rather than a short term operational focus will be best.
- Believe in an urgent, fast paced approach as opposed to a relaxed sense of time.
- Believe that an expansive expenditure orientated approach is more successful than a cost conscious approach.
- Believe that a one-on-one exclusive style, rather than a wide networking style of communications, engaging a broader audience, is more effective.

The EvaleX20 assessment system includes two Interest questionnaires. The WTOS, measures interest in work activities normally performed at work levels 4 and 5, whilst the WOS measure interests in work activities normally performed at work levels 1 – 3.

The WOS seems to be more effective in predicting position level (12/9 of 16 correlating significantly) than the WTOS with 4 of the 9 interest fields correlating with position level. These findings are almost a mirror image of the findings in the study of the 870 high performers. It indicates that the WOS dimensions indicate the level at which somebody can function across a total sample as well as when the sample is sub-stratified consisting of high performers only.

Considering the Work Type Orientation Scale, those that perform better than others at successively higher levels of complexity, tend to like work that involves:

- Conceptualisation: Considering products, markets, competitors and conceptualising trends, differences, concepts.
- Operations control: being in control of a business unit, project or core process.

They do not seem to like to getting involved with Administration and Process and technology.

Considering the Work Orientation Scale, measuring interest in activities mostly at work levels 1-3, those that tend to perform well at ever-increasing levels of complex work, tend to like work that involves:

- Strategic thinking: Thinking about the future, formulating strategies and plans.
- Inspiring others, articulating a future that all can buy into.
- Entertaining: Spending social time with their clients in a relaxed context, such as having lunch or a cup of coffee.

They do not seem to like work that involves largely administrative tasks such as:

- Issuing documentation.
- Stock control.
- Data capturing.
- Serving clients.
- Numerical.
- Designing work-flows.

Study 6: An international sample of 1,566 staff (OMT client companies outside South Africa)

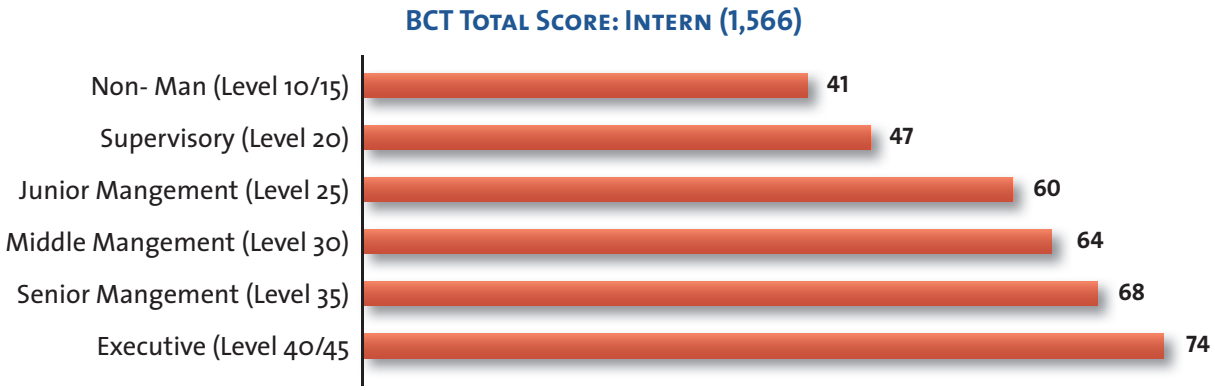
EvaleX20 results correlated with Position level

This study includes 1,566 staff assessed by OMT using the EvaleX system for client companies in the USA, Canada, UK, Norway, Germany, Middle East, Hong Kong, Philippines, Singapore, Taiwan, Australia and Malaysia.

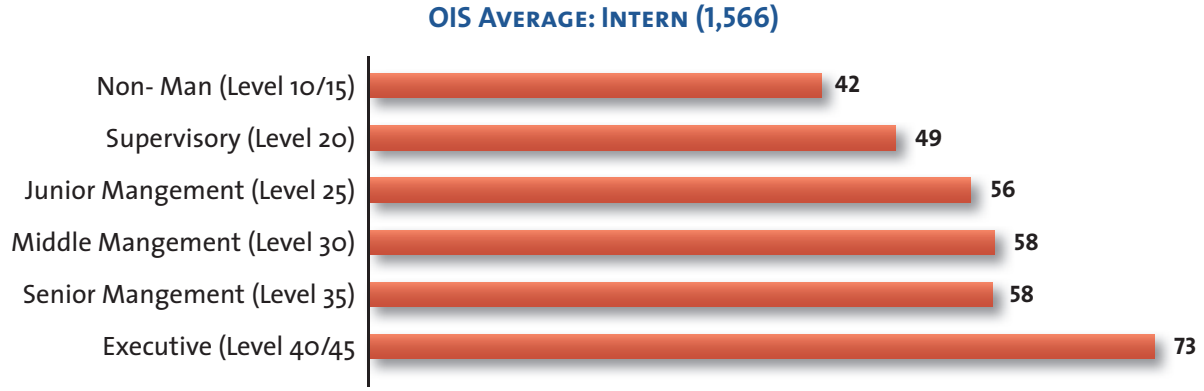
Fifty of the 68 EvaleX20 dimensions correlated with position level.

Examples of some of the dimensions are as follows. The scores indicate the average score per position level.

The first graph clearly shows the different scores achieved by groups functioning at ever-increasing levels of complexity. What this proves and confirms from the previous findings is the direct correlation between position complexity and cognitive capacity. What it further proves is the Business Comprehension Scale's ability to assess cognitive capacity and predict job level at which a person can function.

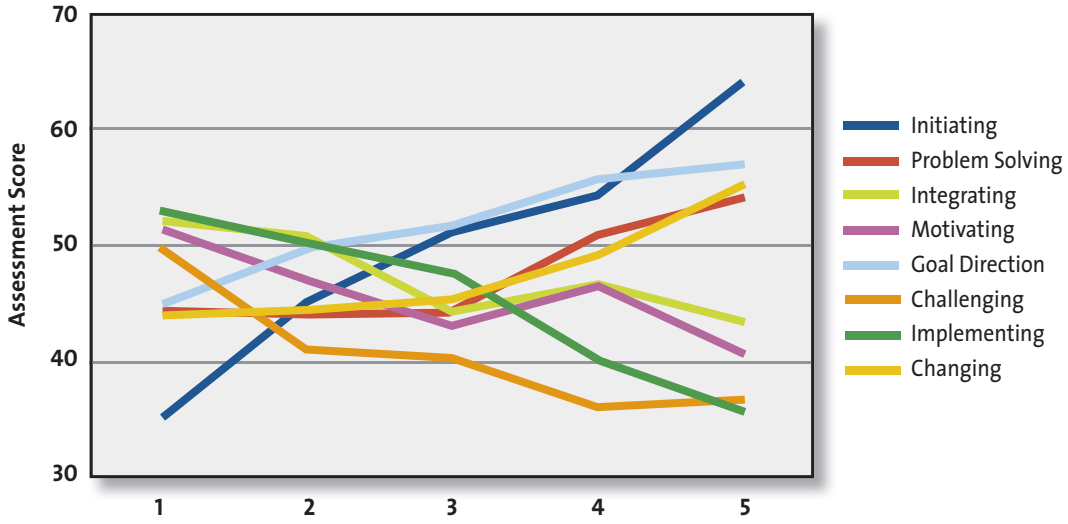


The argument put forth above, applies equally to the Organisation Insight Scale.



The OIS results may be explained as follows: A level of Organisation insight and knowledge better than 50% of those in the database is required to "lift" the individual from a non managerial position level (42%) to a supervisory position. A further major jump in organisation insight is required to propel the individual's career to junior management level (56). From there however, to progress to senior management, other factors start playing a role in career velocity from level 25 to 35. To progress one's career form level 35 to 40/45 again needs a major shift in knowledge, from 58 to 73. The results indicate two seismic shifts in career velocity from non-managerial to top management.

OPCS Factors Correlation with Position Level



The chart above shows the different scores on the OPCS factors per level of work, from level 1 to 5. The interesting conclusion is that some personality factors (a factor consists of personality traits, styles and values) correlate positively with position level and others inversely. What this means is that for instance, to function successfully at position level 5 (CEO level) you need to measure high in some and low in others. It is this unique constellation of dimensions that define success at every level. Further, the combinations or constellations are different for each level.

Note the similarities of this International study of over 1,500 individuals and the South African study of over 600 managers.

These two research projects prove the theory that there are "universal success dimensions". Universal success dimensions are those characteristics that lead to enhanced career velocity irrespective of the unique cultural dimensions of a particular country or society. These two studies cover 23 different countries.

Study 7: Validity of the EvaleX Talent Classifications

Once managers have been assessed, the assessment of Managerial competence, Strategic capacity, Personality, Management Styles and Values are combined with an assessment of Experience, Performance and Position level and then translated by the EvaleX Talent Management module by means of a complicated algorithm to a talent grid position. These range from very talented individuals who are classified as Platinum, down to less talented people who are classified as Iron.

The first of the next three graphs shows how talent is distributed across the different levels of management. This indicates two things. Firstly how talent is distributed across work and management levels. The graph indicates a strong correlation between Talent and Position Level achieved, or differently put, Talent and Career Velocity. The only question we may ask is whether we need more Platinum at level 45 and less Silver at level 40. The second aspect it indicates is the accuracy of the assessment process. When managers are rated Gold and Platinum, they normally function at levels 40-50 and when rated Bronze and Silver, they normally function at levels 20 and 25.

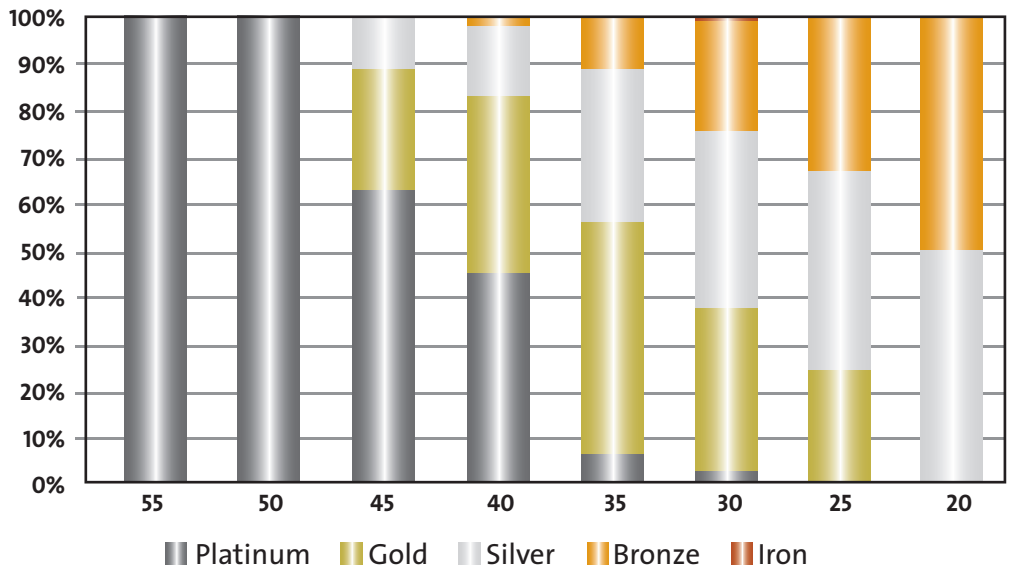
In investigating EvaleX40's ability to measure talent we researched the performance of managers at seven different levels of work. They were Supervisory (Level 20), junior management (level 25), Middle management (level 30), Middle/Senior (level 35), Senior (level 40), Top management (level 45) and CEO (levels 50 and 55). The research involved more than 6,000 managers from 1,800 different organisations across 22 countries.

The average performance of all candidates functioning in, for example, supervisory roles across all these companies on the EvaleX40 assessment, was compared with the average of those functioning at each of the mentioned levels of work. Should the performance of these seven groups differ significantly and indicate a progressively higher performance for each successive level, then the tool is valid and can predict Talent as defined earlier.

From the graph presented, note the trend line of Platinum from 50/55 down to 30 and the score for Gold from 45 to 25.

It clearly indicates that at CEO level you need a Platinum graded manager. Level 45, COO or Divisional CEO level, is populated by mainly Platinum, but also Gold calibre managers. Level 40, GM level or Head/Owner of a core process of a business, such as Head Finance or HR or Ops (all EXCO members) is populated mainly by Platinum and Gold, but the odd Silver calibre managers slipped in among them. Level 20 (Supervisory and Team Leader levels) are mostly populated by Bronze and some Silver talent.

Distribution of Talent Across Position Levels (All Companies)

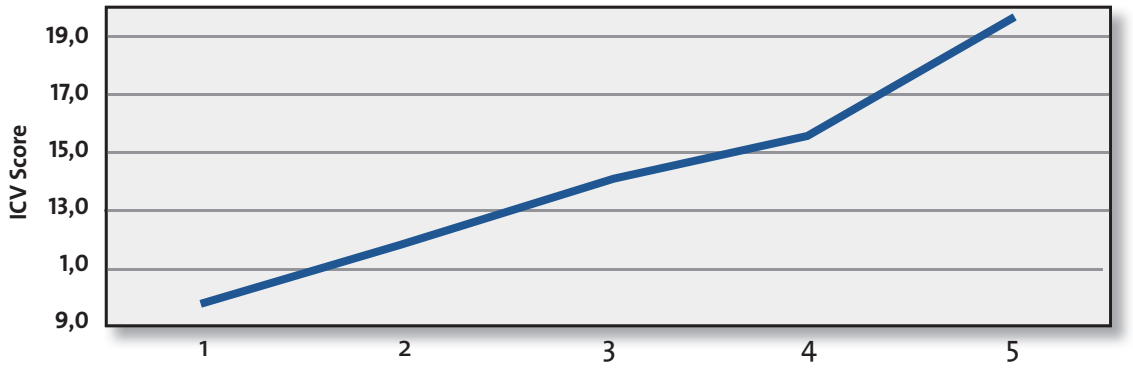


It could be argued that the presence of Platinum talent at position levels 35 and 30, are younger talented individuals on their journey, graduating from the junior levels through to the senior levels. These will one day be the Platinum's at levels 40 – 50. Further, levels 30 and 35 are mainly populated by Gold calibre talent.

The next graph shows the correlation coefficient between the Intellectual Capital value scores and Position level of 0,53.

The Intellectual Capital Value is derived from an algorithm that includes the performance scores achieved by a manager in terms of Average competence level, Average Emotional maturity and Average Strategic capacity. (Average refers to the average achieved across all the EBS management case studies).

Intellectual Capital Value in Relation to Position Level



Accuracy of Talent Classification

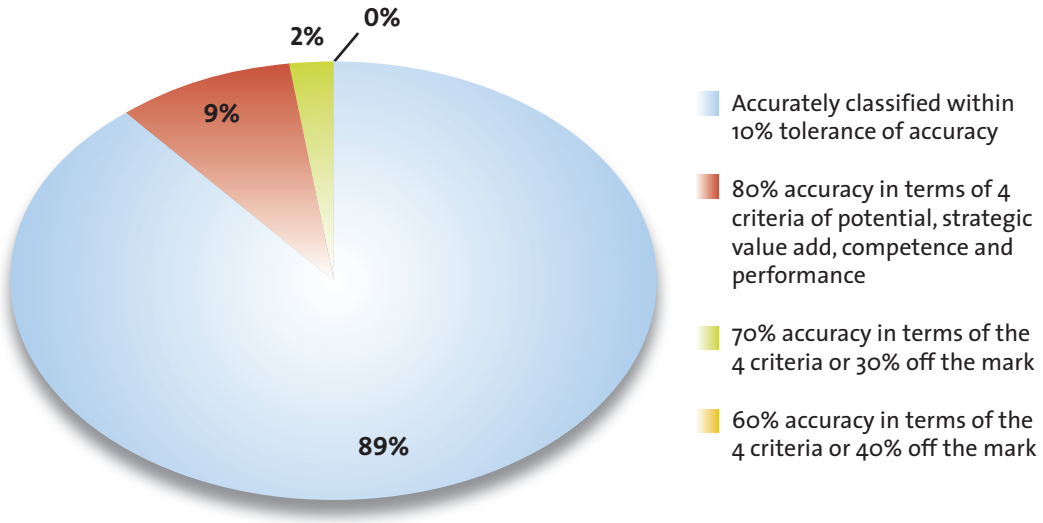
This research correlated the Talent Grid position of an employee (Platinum, Gold, Silver, Bronze, and Iron) with an indication by the client company as to how this person is actually performing 3-5 years after the assessment. It is based on just over 800 managers ranging from Position levels 20 to 60 across 19 different organisations (9 SA based and 10 international).

During validation meetings with clients, each employee's classification was rated in terms of its accuracy on a 6-point scale. Six being spot on, 5 being 90% correct, 4 being one grid point too high or too low and 3 being two grid positions away. A 2 was essentially incorrect by a wide margin and 1 totally incorrect.

The next chart indicates the % of managers correctly classified by EvaleX Talent manager. During the validation meetings, each classification was rated in terms of its accuracy on a 6 point scale. Six being spot on, 5 being 90% correct, 4 being one grid point too high or too low and 3 being two grid positions away. A 2 was essentially incorrect by a wide margin and 1 totally incorrect.

The result in the graph indicates a 89% accuracy (this includes the 5's and 6's). Ultimately what we are asking is if 3-5 years after the assessment was done, did the prediction of the person's classification hold? The answer to this seems to be, yes.

Percentage of Managers who Perform at the Level of Complexity and Level of Performance Predicted by the EvaleX Talent System 3 to 5 Years after the Assessment



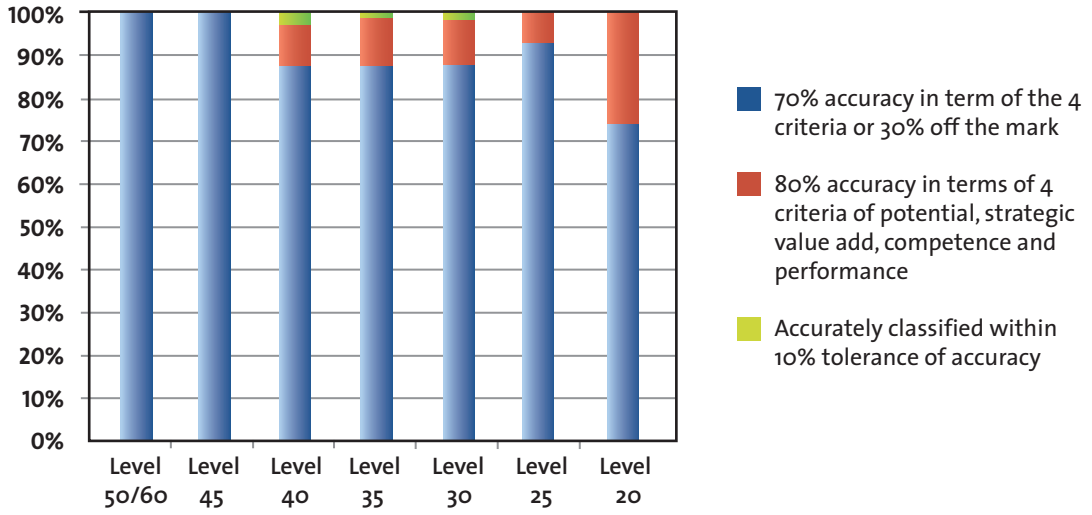
The result in the graph indicates a staggering 89% accuracy (this includes the fives and sixes).

Whilst the previous graph indicated predictive validity of EvaleX Talent classifications across all position levels, the next one drills down into validity at each different level of management. Again, high levels of predictive validity are achieved at all levels. But level 40-50 is most valid, followed by levels 20-25.

The predictive validity seems to be best at determining, after an assessment, who will and who will not be able to function at the senior and junior levels of management. The picture is slightly more mixed at the middle management levels.

In comparing a particular manager's profile against the Position requirements, we use this research framework to advise our clients. When the requirement in your business is for a level 35 manager and the applicants sent to OMT for assessment do not stack up against the benchmark for that role, we have to advise our clients not to appoint them, despite the fact that the search for the correct candidate has been a long and arduous one. The problem does not lie with the process rejecting the client's applicants, but with the recruitment process of not finding the correct calibre of person to apply for the position.

Percentage of Managers who Perform at the Level of Compexity and Level of Performance Predicted by the EvaleX Talent System According to Level of Position, 3 to 5 years After the Assessment



Undisputed evidence exists that to function in a particular position, the position requirements dictate a given level of complexity. Therefore the incumbent requires a minimum level of talent (competence, strategic capacity, personality, management style). You ignore this at your own risk and often very costly mistakes have been made when a person without the required talent level was appointed in a role.

Study 8: EvaleX40 assessment and Talent Results of 157 managers in a financial institution correlated with Position level and Performance

From a total population of over 800 managers in a financial institution a sample of 157 were extracted for this research project.

The 157 managers represent a sample for which a full range of data was available. Their position levels have been profiled, their performance rated and the complete set of EvaleX40 assessment data was available and has been transformed to a Talent Classifications in the EvaleX Talent module.

The EvaleX Business Simulation management competence results, combined with the Psychometric data were translated into Intellectual Capital Values for each manager. The data obtained was correlated with both Position Level and Performance.

The highlights of the findings are:

- Intellectual capital value correlated with Position level at 0,57
- Strategic capacity correlated with Position level at 0,49
- Intellectual capital value correlated with Performance at 0,44
- Strategic capacity correlated with Performance at 0,35
- Average competence level correlated with Position level at 0,36
- Average competence level correlated with Performance at 0,30
- Emotional maturity (EQ) correlated with Performance at 0,33
- Talent classification correlates with Performance at 0,539

Study 9: EvaleX40 assessment results correlated with performance (Sample: 306 managers)

This research project involved a sample of 306 managers characterised as follows:

Biographical Information for the Sample (N=306)

Description	Size	Percentage
Sex		
Male	184	60,13%
Female	122	39,86%
Age		
20 – 29 years	54	17,64%
30 – 39 years	160	52,28%
40 – 49 years	78	25,49%
50 – 60 years	14	4,50%
Education		
Matric or equivalent	106	34,64%
Diploma or equivalent	55	17,97%
Degree	112	36,60%
Post-graduate degree	33	10,78%
Organisational Level		
Lower Management /Supervisory	98	32,02%
Middle Management	165	53,92%
Top Management / Executive	43	14,05%
Sector		
Communications and IT	11	3,59%
Logistics and Shipping	151	49,34%
Services	104	33,98%
Manufacturing	31	10,13%
Medical	9	2,94%
Countries		
Far-Eastern	101	33,00%
Southern African	175	57,18%
European	30	9,80%

The aim was to correlate EvaleX40 assessment results with performance.

The research formed part of a Master's degree dissertation at the University of Pretoria, tilted "The construct and criterion related validity of selected human capital measures of performance".

This involved a regression analysis of the Evalex40 dimensions (assessment centre, denoted with an F, and psychometrics) in relation to 5 types of performance (derived from the balanced scorecard).

The assessment results were correlated with actual on the job performance. In behavioural sciences a measure of about 0,4 is a very good correlation. The research yielded a canonical correlation of 0,593. This proves a very strong relationship between Performance in the EvaleX40 assessment centre and actual Performance on the job.

The table below presents the results of regression analysis of the Evalex40 (EBS Leadership competencies and Psychometrics) factors with actual performance. In other words, multiple variables correlated with only 1 criterion, in this case performance, but in different areas. A multiple regression is a tool that helps us predict future performance.

Multiple Regression: Competence Factors N=130

Model Summary

Model	Multiple R	F	P	Factors	t
Customer Performance	0,337	8,030	0,001	Problem Analysis (F) Managerial Insight (F)	2,510 2,242
Process Performance	0,432	9,587	0,000	General Management (F) Implementing Problem Analysis	3,127 2,741 2,193
Human Resource Performance	0,427	9,267	0,000	Individual Interaction (F) General Capacity (F) Implementing	3,533 2,371 2,329
Financial Performance	0,413	8,428	0,000	Problem Analysis (F) Strategic Capacity (F) Challenging	3,635 2,954 2,491
Commercial Performance	0,536	12,506	0,000	Strategic Capacity (F) Problem Analysis (F) Initiating General Management	4,791 2,758 2,785 2,295

The number to look at here is the Multiple R. Anything above .30 is considered to be a strong correlation. Very important here is that Evalex40 is very good at predicting performance, but especially so in predicting Strategic (Commercial) performance. Strategic performance is the manager's ability to elevate the context of problems or issues to higher levels of abstraction (or levels of work) and to find strategic solutions to day to day business issues. Secondly, we have further evidence that Strategic Thinking Performance is not only made up of cognitive dimensions like Strategic Capacity and Problem Analysis, but also delivery dimensions like General Management and very importantly, personality dimensions like Initiating.

In the table below the results from the EvaleX40 Assessment Centre across all managers in the sample was compared to their performance data using a Canonical correlation, in other words, correlating various independent variables (personality dimensions) to multiple criteria (performance data). As one can see there is a strong correlation between the EvaleX personality factors and performance.

Canonical Correlation for the Competence Factors and Criteria Variables (Performance)

Independent Variables	Variant 1	Variant 2	Variant 3	Variant 4	Variant 5	Total % Variance
General Management (F)	-0,748	-0,230	-0,332	0,257	0,026	
Group Interaction (F)	-0,150	-0,166	0,256	0,309	0,887	
Strategic Capacity (F)	-0,539	0,215	0,367	-0,657	0,279	
Individual Interaction (F)	-0,389	-0,742	0,475	0,078	-0,208	
Problem Analysis (F)	-0,728	0,172	-0,182	0,294	0,151	
Managerial Insight (F)	-0,597	0,252	0,291	0,507	-0,160	
% Variance	31,85	12,84	10,89	15,70	15,95	87,23
% Residue	11,20	1,82	0,35	0,47	0,02	13,85
Dependent Variables	**Variant 1**	**Variant 2**	**Variant 3**	**Variant 4**	**Variant 5**	**Total % Variance**
Customer Performance	-0,585	0,054	0,071	0,526	0,611	
Process Performance	-0,602	-0,362	-0,353	0,347	-0,510	
HR Performance	-0,480	-0,753	-0,051	-0,118	0,431	
Financial Performance	-0,563	0,388	-0,611	-0,398	-0,038	
Commercial Performance	-0,757	0,147	0,588	-0,202	-0,137	
% Variance	36,50	17,50	17,02	12,22	16,80	100,00
% Residue	12,83	2,47	0,55	0,37	0,02	16,23
Canonical Correlation	0,593	0,376	0,180	0,173	0,033	
Significance of F	0,000	0,165	0,806	0,706	0,935	

The focus in this table should be on the correlation between variant one and performance as well as the Canonical Correlation of 0,593 which in the behavioural sciences is high. At just under 0,60, this would indicate that the overall Evalex40 results correlate phenomenally well with actual on the job performance. In other words, individuals that do well in the assessment also tend to perform well. Individuals that do not do well in the assessment, tend not to perform well in their jobs. It is important to realise at this point, that these are exceptionally high coefficients given the behavioural sciences and clear evidence of the predictive validity of the EvaleX40 assessment centre.

Note that the "minus" in the variant 1 column does not reflect a negative correlation. It is simply the way the statistical program printed the data.

Another Interesting finding from this research project is that high performers tend to have the following psychological make-up: They exhibit strong Initiating leadership, are Goal directed (tenacious and resilient) and are Delivery orientated (Implementing behaviour). Interestingly enough, they are low on Change and moderate in terms of Creative problem solving. What matters most to them is transforming situations, being persistent and achieving delivery.

Ultimately what this is saying is that the prediction of performance and the classification of talent is more complex that using cognitive assessments only, one needs a basket of variables to do so.

Study 10: longitudinal study of EvaleX40 assessment advice

The largest privately owned Insurance Company in South Africa has been using the EvaleX40 talent assessment for decision-making during recruitment and selection as well as internal promotions for the past 10 years.

Their Executive Committee posed a simple question: "What is the batting average using the EvaleX40 as an assessment tool?"

In other words, how does the EvaleX40 Talent Assessment Process enhance the correct hiring decisions.

The research included all people who joined the company between January 2010 to December 2012, that had been assessed using EvaleX40 and for whom full performance data was available. The sample contained 104 managers that were appointed.

The criterion used was performance data across a number of review periods. Each candidate was then classified on a 5-point scale as follows:

5 = Top 20% performers in company for at least 4 performance review periods
4 = Never below an Upper 70% (of all staff) in any one of the 4 review periods
3 = All Upper 70, with one drop into Lower 70 during the four review periods
2 = More than one of four review periods in Lower 70
1 = All four reviews in Lower 70% or 1 drop into Bottom 10%

An important footnote is to point out that the client accumulated all statistics and presented OMT with these results. It is therefor a completely independent study conducted by the client.

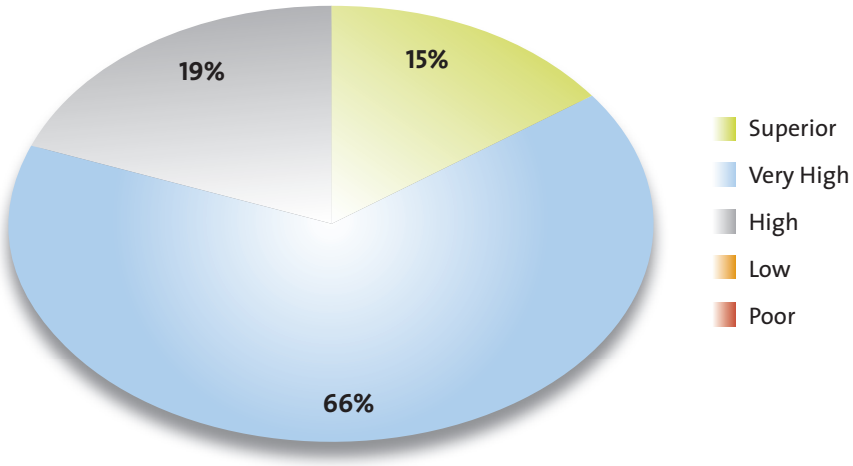
Based on the classification the quality or accuracy of the employment advice provided by the assessment was evaluated from three different perspectives:

1. Percentage accuracy per Recommendation type.
2. Percentage accuracy per Position level.
3. Percentage accuracy per Talent Classification.

Statistics According to Recommendation

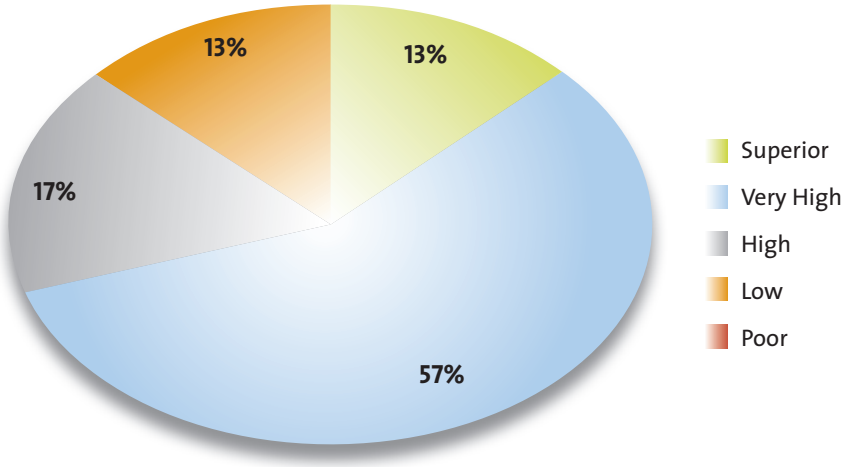
Of all the candidates assessed during this period, 41 were recommended with no reservation or caution. Not a single one of these recommended candidates was classified as low or poor performers. Indeed, 81% consistently performed at a very high or superior level.

Recommended with no Caution (N=41)



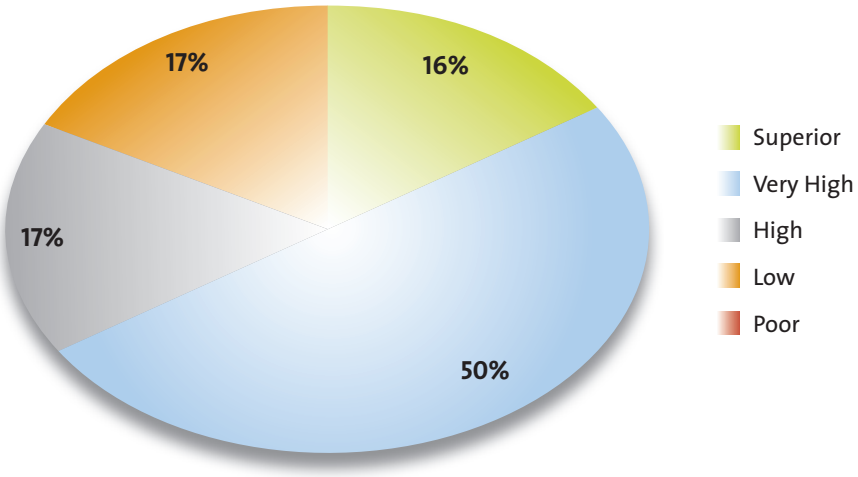
Considering the 23 candidates who were recommended with caution, 70% as opposed to 80% for the no caution group, were classified as very high or superior performers. Where the recommendation with caution was applied, 13% turned out to be low performers.

Recommended with Caution (N=23)



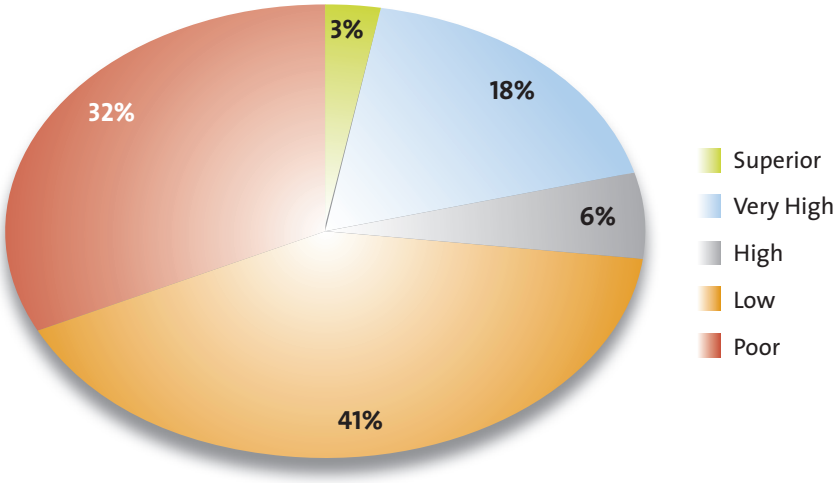
Considering the 6 candidates who were recommended with strong caution, 66% were classified as very high or superior performers. Where the recommendation with strong caution was applied, 17% turned out to be low performers.

Recommended with Strong Caution (N=6)



Considering the 34 candidates who were not recommended yet still appointed as the line manager decided to override the EvaleX results, only 21% were classified as very high or superior performers. Where not recommended was applied, a staggering 73% turned out to be low or poor performers.

Not Recommended (N=34)

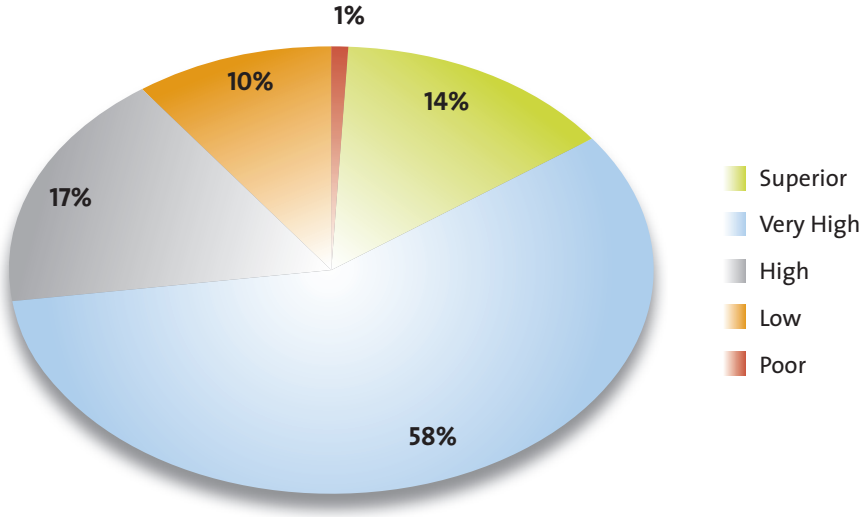


Statistics According to Talent Classification

In this section the quality of the recommendation as facilitated through the EvaleX40 assessment system is investigated from the angle of Talent Classification. It seems that when candidates with higher talent classifications are recommended, they are more likely to end up as very high or superior performers then those with lower talent classifications.

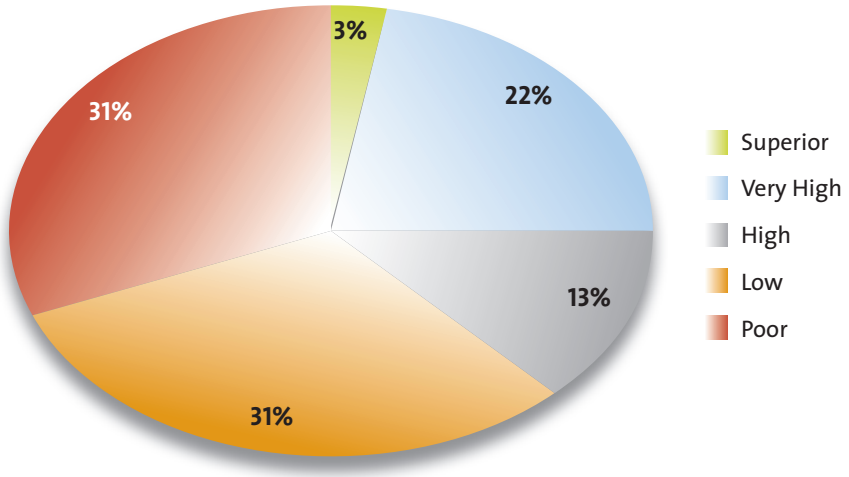
Of the 72 candidates classified as Platinum, Gold, Silver A and B, only 11% turned out to be Low or Poor performers. 88% turned out to be High, Very high or Superior performers.

Platinum, Gold, Silver A and B (N=72)



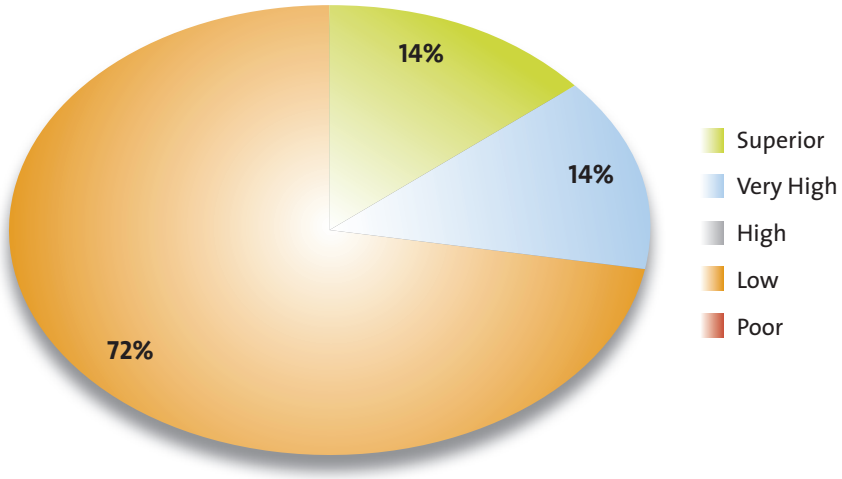
Of the 32 candidates classified as Silver B and C as well as Bronze and Iron, 62% turned out to be Low or Poor performers. Only 38% turned out to be High, Very high or Superior performers

Silver B and D, Bronze and Iron (N=32)

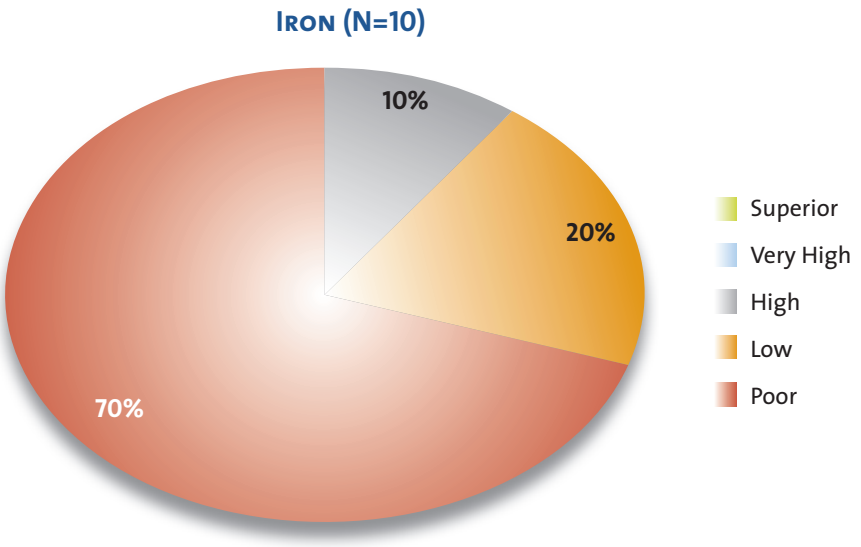


When the 7 Bronze classified candidates are viewed on their own, 72% ended up being Low or Poor performers.

Bronze B (N=7)



When the 10 Iron classified candidates are viewed on their own, 90% ended up being Low or Poor performers. Only 10% succeeded.



Statistics Per Level

This section provides information about the availability of Talent. Given the assumption that only those applicants on a final short list are normally assessed, what percentage strike rate do we find in terms of the extent of talent available.

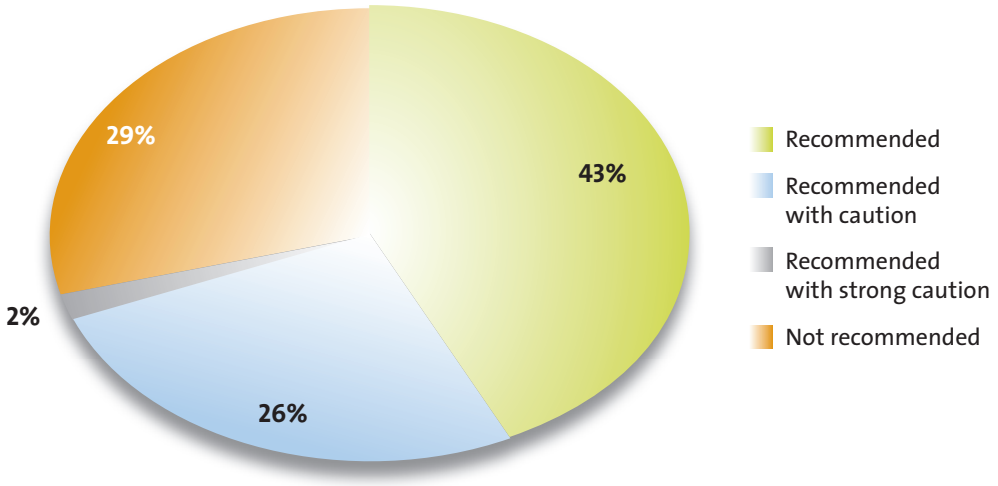
Explained in another way, from all the assessments done, what percentage of candidates would normally be recommended versus declined? The information was analysed at two levels.

The first Pie chart, shows that at the very senior levels (E band), 43% of candidates were recommended without reservation or caution and another 26% with caution. Thirty one Percent were not recommended.

How this can be interpreted is as follows. When the assessment is not used as a filtering process, given the previously discussed performance statistics, a client has an almost 60% probability of appointing the wrong candidate; one that will turn out to be a disappointing performer. This is an even more staggering conclusion, given that the candidates sent for an assessment were on a shortlist and had impressive CVs. This argument becomes more pronounced when C and D band positions are considered.

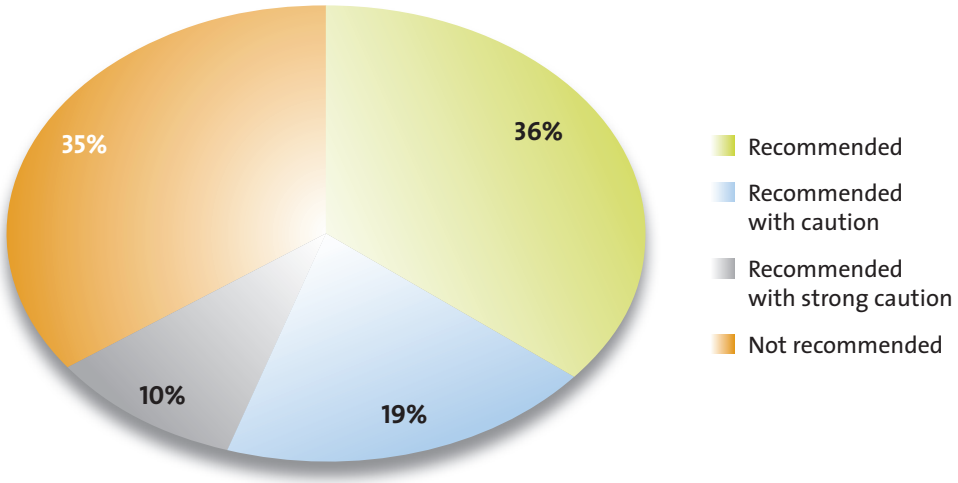
The overall conclusion from these statistics is that without an assessment, a company has only a 40% chance of appointing a high performer, but with the EvaleX40 assessment this probability improves to 90%.

E-Band Recommendations (N 41)



As can be seen, when middle management is considered, only 36% were recommended, with 19% recommended with a caution.

C- and D-Band Recommendations (N 63)



Study 11: Construct validity of the Organisation Personality Construct Scale (OPCS)

Face validity is a judgment by the scientific community that the indicator really measures the construct (Neuman 1997). Content related validity is concerned with whether the measurement procedure contains a fair sample of the universe of situations it is supposed to represent (Cascio, 1998).

Generally content or face validity are measured qualitatively. This is done either by using an expert panel to decide whether items in an instrument have face validity or by designing an instrument from comprehensive literature reviews and domain analysis.

EvaleX has been designed using both these methods. EvaleX is based on a thorough literature review and is modelled on constructs and definitions used in other instruments. There is consensus in the literature and feedback from professionals, assessment candidates and clients that the instrument is valid in terms of content.

This research project is a sub-set of a larger study for a Ph.D. thesis at the University of Cape Town and is as such peer reviewed and academically certified.

To determine construct validity a factor analysis was performed on the 13 personality constructs, eight managerial styles and nine values of the Organisation Personality Construct Scale (OPCS), using a sample of 500 managers.

In terms of the criterion of retaining factors with "Eigen" values greater than one, 11 factors would have been retained, which seemed excessive. The screen test indicated that four or five factors would be appropriate. Four, five and six factors were rotated and the results were compared. A five-factor solution appeared to be most interpretable.

The table containing the factor matrix indicates the five factors in columns 2 to 6. For ease of interpretation, the researcher sorted the coefficients, clustering high positives together and high negatives together (indicated by bold print). In addition to a pure statistical classification, a qualitative view was taken. In this way, constructs with a high correlation were also grouped according to contextual similarity. Constructs that did not load above 0.40 on any of these factors or loaded high on more than one, were ignored.

It was further found that some of the factors were bi-polar. For instance, Factor 1 had four constructs that loaded positively with coefficients above 0.40; these were clustered together and called Problem-solving. However, on the same factor were two constructs that loaded negatively and that seemed to have the same contextual meaning; these two were clustered together and called Implementing. Column one then indicates the bi-polar concepts in capital letters, with the constructs loading on each grouped together.

Factor analysis matrix indicating loading of constructs on each factor

	Problem Solving and Implementing	Integrating	Challenging And Goal Directed	Initiating	Un-Interpretable Factors
PROBLEM SOLVING					
Change	**0.65**	-0.11	-0.11	-0.21	-0.29
Method	**0.60**	-0.19	-0.09	0.05	-0.19
Management focus	**0.46**	0.32	-0.16	-0.05	-0.19
Resourcer	**0.73**	-0.12	0.26	0.29	0.14
IMPLEMENTING					
Structure	**-0.76**	-0.06	-0.26	-0.16	0.07
Completor	**-0.66**	-0.09	0.16	0.31	-0.17
Social extension	**-0.01**	0.40	0.21	0.07	0.09
INTEGRATING					
Integrator	0.21	**0.64**	-0.05	0.31	-0.31
Communication	0.17	**0.63**	0.06	-0.06	0.01
Affiliation	0.19	**0.46**	0.19	-0.32	0.07
Decisions	0.18	**0.73**	-0.12	0.11	0.13
GOAL DIRECTED					
Goal direction	-0.32	-0.34	**0.49**	0.03	-0.30
Composure	-0.30	0.08	**0.43**	-0.31	-0.35
Dominance	0.09	-0.11	**0.58**	0.18	-0.31
CHALLENGE					
Operator	-0.11	-0.31	**-0.51**	-0.14	-0.21
Challenge	0.26	-0.29	**-0.48**	0.18	0.09
Conflict	-0.18	0.26	**-0.44**	-0.31	-0.05
INITIATING					
Initiator	0.38	0.15	0.29	**0.71**	0.01
Control	0.24	-0.28	0.14	**0.60**	0.22
UNINTERPRETABLE					
Achievement	-0.32	-0.02	-0.28	-0.03	0.54
Delegation	-0.33	0.01	0.21	0.08	0.43

Criterion Related Validity (Level / competence/ cognitive capacity)

The 30 dimensions of the OPCS were therefore collapsed into five factors, two of which were bi-polar, two of which contained only one concept and one which was not interpretable. Six interpretable concepts were then identified, namely:

Factor 1 A: Problem-solving: Need for change, preference for the role of resourcer, managerial focus (long term strategic, rather than short term operational) and an unconventional method of work.

Factor 1 B: Implementing: Need for structure and preference for the role of completer.

Factor 2: Integrating: Need for social extension and affiliation, preference for the integrator role, communication (belief in network communication) and decision-making (belief in consultative decision-making).

Factor 3 A: Goal direction: Need for goal directedness, need for composure and need for assertion/ dominance.

Factor 3 B: Challenging: Need for challenge, preference for the operator style of managing and a belief to resolve conflict rather than avoiding it.

Factor 4: Initiating: Need to control and preference for the initiator role.

Un-interpretable Factor: Factor 5 in column 6 of Table 6.3 contained only two dimensions which loaded above 0.40, namely achievement and structured delegation. Both these dimensions however, also loaded above 0.30 on Factor 1 and above 0.20 on Factor 3. Both were therefore discounted as too complex, with no clear emerging construct.

The factor analysis informed the EvaleX report design. Most reports provide the assessment results according to these factors.

Study 12: Construct validity of the EvaleX Business Simulation competency dimensions

The first element of research was done to determine the construct validity of the assessment. In other words, are we actually measuring what we believe we are measuring, are we tapping into a construct? Please see the factor analysis results for the EvaleX Business Simulation (On-line Assessment Centre) exercises below.

Factor Analysis: Rotated Factor Matrix (Direct Oblimin) (N = 306)

	1	2	3	4	5	6
Analysis	0,340	0,260	0,003	0,208	**0,889**	-0,093
Anticipation	0,315	0,317	0,088	0,240	**0,943**	-0,064
Reasoning	0,329	0,339	0,148	0,271	**0,941**	-0,064
Action and Initiative	**0,859**	0,274	0,061	0,183	0,284	-0,090
Insight and Understanding (GM)	**0,795**	0,335	0,110	0,209	0,408	-0,506
Judgement	**0,748**	0,229	0,086	0,162	0,386	-0,562
Delegation	**0,933**	0,254	0,050	0,206	0,301	-0,215
Scheduling and Planning	**0,812**	0,281	-0,116	0,215	0,332	-0,084
Decisiveness	**0,838**	0,271	0,097	0,173	0,354	-0,197
Client Sensitivity (GM)	0,309	0,077	0,022	0,042	0,206	**-0,572**
Organisation	**0,638**	0,286	0,066	0,172	0,262	-0,158
Motivational	0,120	0,249	-0,093	**0,705**	0,220	0,007
Directional (ST)	**0,465**	0,297	-0,116	0,425	0,365	0,117
Flexibility	0,028	0,014	0,180	**0,672**	0,048	0,003
Client Sensitivity (ST)	0,227	0,251	-0,095	**0,521**	0,192	0,023
Charisma	0,255	0,025	0,069	**0,512**	0,246	0,080
Insight and Understanding (ST)	0,318	0,317	0,150	**0,811**	0,375	-0,162
Dominance	0,386	**0,842**	0,019	0,220	0,381	0,224
Debating	0,184	0,220	0,015	0,102	**0,368**	0,367
Insight and Understanding (MM)	0,259	**0,796**	0,247	0,322	0,498	-0,148
Directional (MM)	0,346	**0,896**	0,052	0,160	0,265	0,069
Problem Analysis SST	0,088	0,180	**0,935**	0,143	0,180	-0,127
General Management SST	0,531	0,199	0,094	0,220	0,313	**-0,713**
Meeting Management SST	0,266	**0,785**	0,227	0,235	0,274	-0,313
Staff Management SST	0,097	0,163	0,150	**0,635**	0,105	-0,233
System 40	0,452	0,586	0,118	0,444	0,382	**-0,657**
System 50	0,000	-0,004	**0,847**	0,051	0,072	0,020
System 60	0,100	0,236	**0,787**	0,099	0,045	-0,069

A Factor Analysis involves correlating all dimensions assessed with each other (as opposed to correlating each dimension with a criterion score such as performance or career velocity). The purpose of a Factor Analysis is to see how the 28 competencies assessed "hang together" or cluster together.

What can be concluded from this table is that the EvaleX Business Simulation, which is part of the EvaleX40 Talent Assessment process, has clear construct validity and 6 constructs emerged. These closely resemble the exercises and constructs we measure: Problem Analysis, Strategic Capacity, General Management (In-basket), Staff Management and Meeting management.

Study 13: Predictive validity of the EvaleX Competence Inventory (ECI)

The ECI is a unique assessment technique that has been developed by Organisation and Management Technologies (OMT). In essence the tool uses the competencies that have been defined in a role profile and translates this into a competence assessment. It can almost be described as an electronic competence based interviewing tool where the assessment process determines the level of competence for a candidate on between 20 and 40 competencies.

Two aspects of research were done with regard to the ECI, both within a South African Retail Bank.

Study 1 included candidates which were all based in the Branch Network across the country and specifically within the Client Services and Sales areas of the Branch Network. In total this research covered 7 different roles within the Branch Network with a **sample size of 191**.

Study 2 included candidates from different areas within the bank e.g. Credit, HR, Private Banking, Business Banking, Branch Network and Vehicle and Asset Finance. The total **sample was 519**.

The criterion used in both the studies was Performance. This criterion data was gathered by identifying individuals who in the internal company performance management system consistently (at least 3 review periods) performed at exceptional levels of performance (high performers). Conversely the performance management system was also used to identify those candidates who consistently performed at sub-standard levels (low performers). So each candidate had a classification of being either a high/superior performer or a low performer.

The direct line manager of each candidate was then asked to complete the ECI assessment on the candidate. In this way an overall percentage score of between 0 and 100 was obtained indicating the level of competence exhibited in relation to the role.

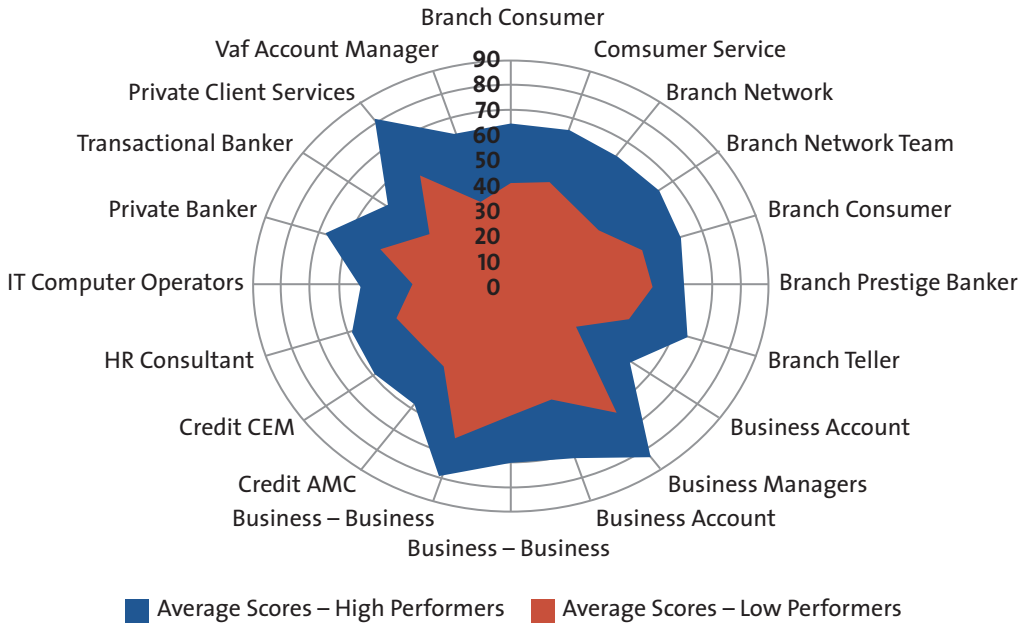
For both Studies, in determining the validity of the ECI in relation to the criteria of actual on-the-job performance it was decide to use the **Independent Sample T-test**. An independent statistician performed this function.

The research results for Study 1 indicated that there was a statistically significant difference in the scores on the ECI between the high performing group and the low performing group at **$p<0.001$**. The **Cohen's D was = 1.15**. The latter is indicative of a very large effect size (large differences). When one converts this Cohen's D effect size to a more traditional correlation then **r = 0.5**. According to the British Psychological Society this is in line with what one will find in cognitive ability tests.

The research results for Study 2 indicated that there was a statistically significant difference in the scores on the ECI between the high performing group and the low performing group at **$p<0.001$**. The **Cohen's D was = 0.71**. The latter is indicative of a large effect size (medium to large differences). When one converts this Cohen's D effect size to a more traditional correlation then **r = 0.334**.

The spider chart below shows the average scores achieved by the high and low performers respectively for 20 such positions.

EvaleX Competence Inventory (ECI) Scores for High and Low Performers Across 20 Different Positions



The difference in effect sizes between the two studies can be attributed to the difference in homogeneity of the two studies. Study 1 included candidates from only client facing, customer orientated roles within one area (Branch Network), all homogenous in terms of competence requirements. Study 2 on the other hand was more heterogeneous, including candidates from different areas, environments and organisational levels across the entire Bank.

From the research it is clear that there is a statistically significant difference in the scores obtained by high performing individuals in relation to the scores obtained by low performing individuals on the ECI. In fact the results seem to suggest that not only is there a statistically significant difference, but that this difference is also quite large.

Study 14: Race and Gender Equality of EvaleX20

The EvaleX20 assessment results of 930 candidates were provided to Dr. Nel, Head of Organisation Psychology at the University of the Free State in South Africa to research the extent of race and gender variances across all dimensions.

The breakdown of the sample is as follows:

- Male = 522
- Female = 408

In order to determine whether or not there are any significant differences with regards to Gender on the various Evalex constructs, an independent samples t-test was used.

The results of the latter are reported that the Male and Female Groups only differ on 6/53 constructs measured. Secondly, although there are significant differences, the majority of these differences are classified as "small" when using the guidelines provided by Cohen (1988).

Depending on the occupations that Males and Females find themselves in, the observed differences may very well be expected.

The question can therefore be asked: "Do these significant differences indicate bias?" The issue of using Group Mean Differences as an indicator of discrimination therefore needs to be clarified. The following quote sets the tone: "A lower mean test score in one group compared to another is not by itself evidence of bias, nor is use of test scores with group mean differences evidence by itself of discrimination" (Guion & Highhouse, 2006, p. 209). Hence, the statistically significant differences obtained and reported here cannot be used to infer discrimination. More specifically, the choice of constructs should be relevant to the inherent requirements of the job. Information obtained from a job analysis will enable an organisation to defend the choice of constructs and instruments.

The final conclusion to be reached is that most psychometric tests will have some dimensions that indicate variance between gender, but in the case of EvaleX these differences are very small and often attributable to job type or job level in the organisation, rather than racial group or gender.

Study 15: EvaleX40 assessment and Talent Results of 100 managers in a financial institution correlated with Position level and Performance

The same sample of managers used in the study on "batting average" was used in this study. The difference being that in that study the results of assessment recommendation was correlated with subsequent performance.

In this study the assessment results at a dimension and construct level were correlated with Position level and Performance.

The 104 managers represent a sample for which a full range of data was available. Their position levels have been profiled, their performance rated and the complete set of EvaleX40 assessment data was available and has been transformed to a Talent Classifications in the EvaleX Talent module.

The EvaleX Business Simulation management competence results, combined with the Psychometric data were translated into Intellectual Capital Values for each manager. The data obtained was correlated with both Position Level and Performance.

The highlights of the findings are:

- Intellectual capital value correlated with Position level at 0,68
- Average Competence level correlated with Position level at 0,53
- Strategic capacity correlated with Position level at 0,47
- Intellectual capital value correlated with Performance at 0,34
- Average Competence level correlated with Job performance at 0,40
- Organisation Insight Scale correlated with Position level at 0,45
- Business Comprehension Scale correlated with Position level at 0,39
- Nine of the sixteen WOS interest dimensions correlated with Position level above 0,25 (all significant)

Conclusions to all studies

Research regarding the Reliability and Validity of EvaleX is on-going and the research studies catalogued in this document seem to indicate the following:

The EvaleX Business Simulation, which assesses managerial competencies using Assessment Centre technology, proved exceptional validity in predicting both Performance and Career velocity.

The Psychometrics, which forms the totality of the EvaleX20 assessment system and part of the EvaleX30 and EvaleX40 assessment systems, also showed powerful predictive validity.

However, when these two technologies are combined in the Talent Management module to derive the Intellectual Capital Value and Talent classification per candidate, then the correlation coefficients increased by a seismic shift to above the 0,50, which is exceptional given what is normally found in AC and psychometric research.

The EvaleX Competence Inventory, assessing Business and technical competencies, a completely new form of assessment, also achieved predictive validities of 0,33 to 0,50.

We believe that OMT provides its clients with a best of class Internet based Talent Assessment System, successfully integrating three assessment technologies into one platform, with remarkable predictive validity when benchmarked at an international level.

Kind Regards
Dr. Pieter Bronkhorst

EvaleX is the only assessment platform that integrates three major assessment technologies into one global Internet based solution. Assessment centre technology (6 management simulations) psychometrics (7 psychometric tools) and the EvaleX Competence Inventory (business and technical competencies)

It is presently the only assessment platform where the psychologist can create an integrated assessment session combining 6 Assessment Centre simulations/case studies and 7 psychometric tools that the candidate can complete in one session, via the Internet, providing a totally integrated report across all the tools.

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