

**Czech University of Life Sciences Prague**  
**Faculty of Economics and Management**  
**Department of Management**



**Bachelor Thesis**

**IT systems in HRM**

**Author: Eva Moravská**

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**Declaration**

I declare that I have worked on my bachelor thesis titled “IT systems in HRM” by myself and I have used only the sources mentioned at the end of the thesis.

In Prague on 23.3.2010

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Eva Morawská

## **Acknowledgement**

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**IT systémy v personálním řízení**

**IT systems in HRM**

**Souhrn:**

Práce popisuje využití a výhody IT systémů v personalistice. Práce je zaměřena na dvě hlavní oblasti personalistiky a to nábor a rozvoj zaměstnanců. Teoretická část je rozdělena na tři úseky. První úsek popisuje psychometrické testování obecně a obsahuje definice, požadavky a využití psychometrických nástrojů. Následuje úsek zaměřený na online testování a je zahrnuje vývoj, rozdělení online nástrojů, a tabulka predikce validity. Jako podklad pro teoretickou část sloužila odborná literatura.

Praktická část je zaměřena na nástroje vytvořené společností cut-e a jak jsou tyto nástroje implementovány v praxi. Podklady pro praktickou část tvořily interní materiály společnosti cut-e a informace a zkušenosti získané konzultacemi se zástupci společnosti cut-e.

Cíl práce je shrnout situaci na trhu s online testovacími nástroji pro personalisty a jak se situace vyvíjela. Užití online testovacích nástrojů je uvedeno na praktických příkladech.

**Klíčová slova:**

Nábor, rozvoj, společnost, psychometrické testování, online nástroj, test, dotazník

**Summary:**

The thesis describes the usage and advantages of IT systems in HRM. It is focused on two main areas of HRM which are recruitment and development.

The theoretical part is divided into three main parts. The first one is called Psychometric testing and it contains Definition, Demands and Usage of psychometric tools in general. Next part of the thesis is focused on Online testing. The second part is divided into Development, Division and Prediction validity chart. As underlying documents for the theoretical part was used specialized literature.

The practical part is focused on tools developed by cut-e company and their implementation in real company. As underlying documents for the practical part were used cut-e internal materials.

The aim of the thesis is to describe the situation on the HR psychometric tools market, how has the situation on the market developed. The usage of IT tools is shown on practical examples.

**Keywords:**

Recruitment, development, company, psychometric testing, online tool, test, questionnaire

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## **1 Introduction**

Over the last 30 years the natality decreased rapidly all over the world. Even the Czech Republic experienced a decrease in birth rate. What does this fact indicate? It indicates the simple truth about our future. There will be an acute lack of labour force in next few decades in developed countries and this is even more serious issue regarding the qualified labour. It has been difficult recently for HR people to find suitable candidates. Therefore it will become harder and harder to find suitable candidates for companies in the future. When searching for new employee the job of the HR manager is to find match between Person, Organisation and Role (working position). Without full harmony of these three components there is only a little chance that the new hired employee will be the best choice for the company and will not leave it soon. The HR manager has to take into consideration several factors when thinking about new candidate. At first he/she should think about important competencies necessary for successful performance of the employee on the job. These should always be discussed with the line manager and/or with the employee working at the same position. Second he/she should consider motivating factors of the position and find out if these motivators are matching with needs of the employee. Also there is a formula well known in biology that says  $G+E=F$  (Genotype, Environment, Fenotype). When searching for competencies/behavioral factors on the candidate side it is very good to realize which competencies are given and which the candidate obtains during lifetime by the influence of family, friends and school of course.

The HR manager has to ask several questions during hiring process such as: Is this person the most suitable candidate for the job in question? Does he/she have required knowledge, skills and abilities, and if not - is there a chance to gain and further develop them? Does he/she have the qualifications for the job? Will he/she prove the expected stable performance? Finding suitable employee who will fulfill all requirements is not easy task at all. In effort to do HR manager's job properly he/she uses various tools and methods which should be combined suitably so it is possible to reach optimal result – find suitable information from suitable sources and thus candidate.

By finding the right candidate the HR manager's job is not over yet. From this point he/she is responsible for further development of employees' strengths, maximizing the value added generated by the employee and eliminating weak spots of a candidate which could be contra productive for the company objectives. Therefore in this phase the implementation and using HR tools is even more important.

## **2 Objectives and methodology**

The main objective of this thesis is to describe the current situation on the HR psychometric tools market, how has the situation developed since the online tools entered the market. Good psychometric testing both “pen-paper” and online help to increase the quality of recruitment and development in the company. If the HR manager uses the tools properly then the result are obvious. The professional psychometric tools save time and budget of the company and optimize the recruitment and development processes. The aim of this thesis is to prove such hypothesis by theoretical research followed by practical examples in practical part. .

The author of this bachelor thesis has obtained data from specialized literature, specialized magazines, and internal documents from company cut-e and also from knowledge gained during interviews with representatives of cut-e (the company will be described in chapter Case Study later on). The author also visited seminars on the Czech University of Economics in Prague called IT systems in HRM led by representatives of cut-e.

### **3 Literature review**

#### **3.1 Psychometric testing**

##### **3.1.1 Definition**

*“Psychometric testing is a method of obtaining objective information about various individual abilities and characteristics of an individual (candidate). As psychometric tests we can consider these which meet following requirements:*

- *The tests are professionally developed and their validity and reliability is verified*
- *The tests provide administration and objective scoring in a standard way*
- *The tests identify maximum and usual performance*
- *Their result is a score which can be compared with norms of relevant population”*

(FOOT, M., HOOK, C., 2002)

##### **3.1.2 Demands**

Standardized administration assures that all candidates are tested under same conditions. Psychometric tests as a recruitment and development tool should be used only by those who are sufficiently competent – have sufficient knowledge and experience with completing, evaluation and interpretation of these tests. The best possibility is when the interpretation of results makes a psychologist or at least a HR manager who has been through a special training.

*Foot and Hook* say that if all above mentioned requirement are fulfilled then the implementation of psychometric test into process of recruitment and development will:

- Add a element of objectivity
- Increase assumed validity of decision
- Measure certain factors that can not be measured by any other methods

(FOOT, M., HOOK, C., 2002)

### 3.1.3 Usage

*“Psychometric tests used in recruitment are supposed to enable the HR managers to predict if and how much will be the chosen candidate successful in his/her new job.”*

(ARMSTRONG, M., 2002)

According to *Foot and Hook* is **usage of psychometric tests recommended if:**

- The wrong decision about the most suitable candidate is extremely expensive, i.e. middle and high management
- The ratio of candidates and free job places is high and the additional information essential for pre-reduction are required

Within framework of employees selection is used especially tests which determine working characteristics of a personality.

It is important to realize, that the psychometric test should always correspond with the job in question. Results of the test must provide relevant information (about the candidate) related to the free job place which the company could not (or under difficult conditions with inappropriate costs) get or verify with any other selection method. According to what has been mentioned above for various job places in a company there are suitable various psychometric tests (different tests for administrative worker, specialist or manager). (KASPER, H., MAYHOFER, W., 2005)

The more is the test related to activities, which a candidate is going to do in his/her future job, the better is the result of using testing as a selection method.

The candidates accept better tests that contain activity related to their future job. This fact increases the validity of the test and makes the test more acceptable for the candidate and it can influence the willingness to take the test seriously and the motivation of doing the test as best as they can. Therefore the level of validity is a factor which should be taken into consideration already during selection and creation of the test. (FOOT, M., HOOK, C., 2002)

The tests should meet several criteria in order to **serve the purpose:**

- Objectivity

- Standardization
- Reliability
- Validity

(SVOBODA, M., 1999)

### **3.1.3.1 Objectivity**

*“Objectivity of a test means, that the result of the test is not influenced by a person doing the test nor the person correcting the test. Instructions and conditions of the test are the same for all candidates.”* Sometimes a candidate tries to present him/her self better than he/she is in reality. He/she tries to formulate him/her self into expected role. Many tests and especially questionnaires contain so called lie-score; their function is to uncover such tendencies. (SVOBODA, M 1999)

### **3.1.3.2 Standardization**

*“Standardization is summary title for establishment of reliability, validity, determination of norms, screening of individual parts of the test, setting united instruction and administration of the test. Widespread is the term standardisation used for determination of norms – normalization.”* The results of individual candidates are compared with the results of norms, which have been obtained by testing big representative sample. The norm is understood as average performance, value of typical reaction of the population sample in question. For easier comparison with the norm, the performances, which the candidate has accomplished in the test –so called gross scores, transfer to weighted scores or standard scores. Examples are percentiles, which indicate how many percent of the population is worse than the tested person (candidate) in the relevant criteria. If a candidate reaches in certain test 95percentile, it means that his/her performance is better than the performance of 95% population (respectively norm or comparison group. (SVOBODA, M.,1999)

### **3.1.3.3 Reliability**

Reliability means the solidity with which the test measures. It is the accuracy of measuring, regardless of what tests measure. Reliability is represented by the stability in time, equivalence and internal consistency (homogeneity). Stability over time indicates the extent to which the results correspond each other if testing in much the same test repeatedly. If you mark an absolute consensus by the coefficient 1, the value of the coefficient of quality test should not fall below 0.8. Equivalence means comparability of the results in case where multiple versions of a test are used. Internal consistency is determined by the level of homogeneity test items (respectively individual parts of the test). (SVOBODA, M., 1999)

### **3.1.3.4 Validity**

Validity is the most important psychometric criterion, because it indicates whether the test really measures what it should measure. It illustrates the practical usefulness of the test. (SVOBODA, M., 1999)

Another fact, which is suitable to mention about psychometric tests is the way of working with their results. After the initial testing results are compared with appropriate comparison group (amount of adult population, university graduates tec.). Evaluation then may be expressed several ways, the most common is the use of percentile. In the next step is possible to choose one of three possible techniques.

- So called downwards selection (selection of those, who had best score, until all free positions are filled. Disadvantage: even the best candidate does not need to be sufficiently good or on the other hand he/she can be too good considering the position in question)
- Minimum possible result method( certain minimum result is set up, the candidates have to reach such result)
- Orientation on profiles(orientation on strong and weak spots of the candidate, which can be detected in case, that the candidate passed more than one test)

If the candidate passes the psychometric test it is more than appropriate to provide him/her feedback even in the case that he/she was not successful during the admission procedure. (PARKINSON, M. 2002)

## **3.2 Psychometric online tools**

### ***3.2.1 Development of psychometric tools***

*“As psychometric tools we consider mainly workmanlike questionnaires and tests focused on monitoring of personal characteristics, motivation factors, competences, etc.”* They have been used in HRM in so called pen-paper form for decades. With accessibility of modern information technologies followed by development of the internet the psychometric tools experienced the boom and they have been spread among wider field of activity. (HRKAL, F., 2008)

Two forms of psychometric tools

- The first form is offline form, which means that the questionnaires and tests are installed into the computer and they are easy to administrate.
- The second form is online form, which enabled full usage utilization of all advantages of testing. Above all it reduced the disadvantages connected with slow scoring, it cut the time needed for processing and evaluating data just like time needed for the transport of the candidate on the place of filling the test.

Step by step there have appeared plenty of companies that provided implementation of online tests and questionnaires. Their level, fulfillment time, variability and especially integration possibilities differ a lot. (HRKAL, F., 2008)

### ***3.2.2 Division of online systems***

Online systems can be divided into two groups



- Online systems for better effectiveness and professionalization of recruitment
- Online systems for development of employees

Specialized tools for 360° feedback together with above mentioned personal questionnaires and tests have an important role in both recruitment and development.

### **3.2.2.1 Personal questionnaires**

*“Personal questionnaire is a subjective tool (candidate describes him/her self) for finding attitude, values, motivation and interests. The data obtained from questionnaire are objectively processed and compared with required criteria. Their big advantage is wide specialization spectrum and reliability (on condition that the questionnaire is made professionally).” (HRKAL, F., 2008)*

Two key areas for HR managers

- Competences mapping
- Motivation factors mapping

The only weakness of personal questionnaire is that the candidate can stylize him/her self somewhere (either wittingly, or unknowingly-the candidate has no realistic sight of him/her self). The high-quality questionnaire should be able to dispatch this disadvantage with the ability not being transparent for the candidate on the first sight. The report from the questionnaire can tell how much does the answer of the candidate differ from the answers of comparative group.

Up-to-date questionnaires use sophisticated item generators. The questionnaire measures the same competences but every time in different order, which eliminates possible preparation or cheating.

In the past the biggest disadvantage was that the questionnaires were very time consuming. The average time needed to complete the questionnaire was from 45 to 90 minutes. A tired

candidate who wants to finish the questionnaire in 30 minutes and does not pay a lot of attention to the questions if it is too long is not good for reliability of questionnaires.

The development is still in progress and nowadays it is possible to find on the market questionnaires which have high prediction validity (see **3.1. Figure: Prediction validity chart**, which compares price demandingness and prediction validity of various tools, which a HR manager has at his/her disposal) is possible to reach after a time interval of 15-20 minutes. Thanks to online access (including immediate evaluation) there are no additional time demands of a HR manager and a candidate. The HR manager can use this tool to evaluate dozens, hundreds or even thousands of candidates at the same time.

High quality and user friendly questionnaires with specialized background and evaluation can describe a candidate in a very quick and clear way. Nevertheless the customer has to pay attention by selecting a provider of the questionnaires. There are several specifications that the customer should ask for when selecting a provider:

- Full transformation of the questionnaires and follow-up outputs into Czech
- Execution of respective standards
- Possibility of preview of tangible output

There are two groups of providers:

- Professional providers – they can handle the whole administration in more than one language, the output level is very good
- Would-be professional providers – their output level is notably underneath the average, the administration is accessible only in one language

Price of the questionnaires differs according to required type and range of output. However the standard price of high quality online questionnaire is set from 450 to 1200 CZK. Thanks to innovations of some huge on-line job posting providers who implement these

tools to their existing on-line platforms, such a local famous provider LMC (jobs.cz...) the price can be further reduced and thus can be afforded by any company. Some providers of these systems offer an online tool for creation competence profile which enables the HR manager to choose the essential competencies and behavior factors for the job and then can compare the candidate with selected standardized norm group and also with the specifically made profile. The competence profile can unroll strong and weak spots of the candidate according to the requirements for the job. The competence profile has become popular among HR managers because one of its ability is creation of report for entrance interview. The report suggests convenient competency based questions, shows positive and negative factors which the HR manager should pay attention to and above all provides standardization and equal working opportunities. (HRKAL, F., 2008)

### **3.2.2.2 Tests**

Tests are objective tools

- A candidate can objectively prove whether he/she has requested skills, i.e. logical thinking

Test appropriately finishes the view of competence questionnaires. The price of these tests is supposed to be always counted in hundreds of CZK. The time needed for their fulfillment begins on 2 minutes (still keeping high validity) and the average time for fulfillment is nowadays about 7 minutes. The online test can examine language knowledge (mostly English and German) , logical thinking, three-dimensional orientation, short time memory, numerical and verbal thinking and many other specialized test used by airlines for pilots selection (tests focused on coordination of sight and touch). As a very interesting test can be mentioned test for remembering faces and names, test of working with priorities and time management. (HRKAL, F., 2008)

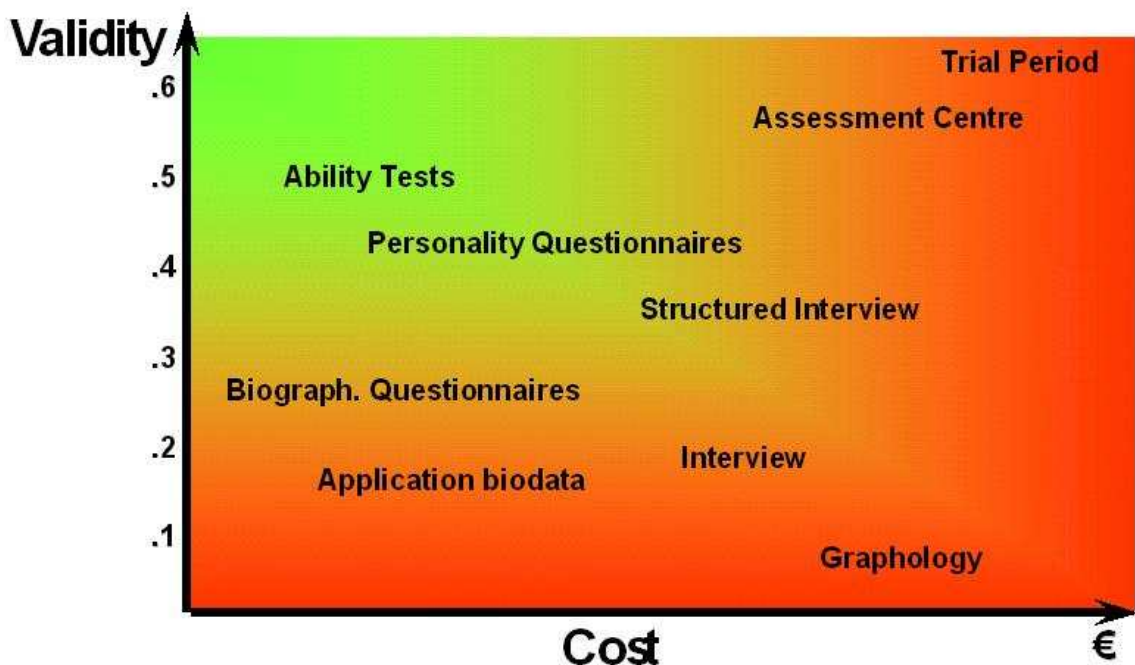
### 3.2.2.3 360° feedback

360° feedback is an online tool which is very popular among HR managers and is based on the principle of asking. 360° feedback is able to provide rather wide view of a participant, which can be used for his/her future development later on. The view of the key competencies is expressed by a participant him/her self, his/her supervisor, colleagues, employees, and external and internal customers as well.

Immediate comparison of several views on competencies of evaluated participant is described generally as well as with concrete statements and is very important in his/her further development. The whole process can be completed within few minutes with functional online tools. The price of this tool is around 3500 CZK on average. (HRKAL, F., 2008)

### 3.2.3 Prediction validity chart

3.1. Figure: Prediction validity chart



Source: cut-e internal material

**3.1. Figure: Prediction validity** chart is described in following chapters.

### **3.2.3.1 Graphology**

Graphology costs are very high but the validity is at very low level. Graphology has got long tradition in France and even the HR managers in France have considered this method as reliable tool, the situation in other states in Europe is quite different. When speaking about the Czech Republic, graphology has got only a little tradition and it is used rarely. To have reliable information about the candidate gained from graphology, the HR manager needs to have huge professional training and knowledge in the graphology field. Thus graphology is not used in the Czech Republic that often because of the lack of knowledge needed for its reliable results.

### **3.2.3.2 Application biodata**

**Application biodata** have as an advantage of low costs but the validity is at low level as well. According to recent researches made by the biggest Czech job posting web servers over 75% of applicants are shifting or manipulating data in CV.

### **3.2.3.3 Interview**

**Interview** costs are even higher than application biodata costs and the validity level remains the same till the interview is not focused on competencies (structured interview).

### **3.2.3.4 Biographical questionnaire**

**Biographical questionnaires** costs are the same as application biodata costs and the validity level is higher.

### **3.2.3.5 Structured interview**

**Structured interview** is much more effective tool in recruitment than the classic one. The difference lies both in form and content of the interview. Structured interview is focused

only on those competencies previously selected by the line manager/HR manager. During 45-90 minutes of interview, the interviewer works with so called STAR concept.

➤ **STAR** concept - **S**ituation, **T**ask, **A**ction, **R**esult

On the 3.2. Figure there are recommended questions for the HR manager when leading structured interview with the candidate. The questions are based on STAR concept. The candidate should describe a situation the HR manager is asking about, what the task of the candidate was, what did he/she do to deal with the task and what was the result of the whole action. According to the answers there are behavior indicators on the right side of the figure. The behavior indicators are either positive or negative.

Validity level and costs of structured interview are average.

3.2. Figure: Star concept

recommended questions	behavioral indicators
<ul style="list-style-type: none"> <li><input type="checkbox"/> Give me an example of a change you saw coming, or something you thought was necessary to change.               <ul style="list-style-type: none"> <li>• How did you go about planning for it?</li> </ul> </li> <li><input type="checkbox"/> What are the major trends in our business?               <ul style="list-style-type: none"> <li>• Which actions should be taken?</li> <li>• How could we prepare for these trends?</li> <li>• What are the risks if we do not prepare for these trends?</li> </ul> </li> <li><input type="checkbox"/> What was the last strategic plan you developed?               <ul style="list-style-type: none"> <li>• What was the scope?</li> <li>• On what did you base your predictions?</li> <li>• Looking backwards, how realistic was your vision?</li> </ul> </li> <li><input type="checkbox"/> Tell me about an occasion where you had to revise a business strategy in the light of changing circumstances?               <ul style="list-style-type: none"> <li>• Why was the revision important?</li> <li>• What has changed?</li> <li>• What was the result of the revision?</li> </ul> </li> <li><input type="checkbox"/> Tell me about an occasion where you translated a vision into strategic goals and objectives?               <ul style="list-style-type: none"> <li>• What was the challenge in that?</li> <li>• How did you communicate the strategic goals and objectives?</li> </ul> </li> </ul>	<p style="text-align: center;"><b>Positive</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Develops an ambitious but realistic vision for the future of own business</li> <li><input type="checkbox"/> Demonstrates awareness of a very broad range of issues related to own work</li> <li><input type="checkbox"/> Translates vision into strategic goals and objectives</li> <li><input type="checkbox"/> Provides a strategic perspective</li> <li><input type="checkbox"/> Revises business strategy in light of changing circumstances</li> <li><input type="checkbox"/> Maintains focus on strategic plans and objectives in every day work</li> </ul> <p style="text-align: center;"><b>Negative</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Has no realistic vision for the future of own business</li> <li><input type="checkbox"/> Is not able to demonstrate awareness of a very broad range of issues related to own work</li> <li><input type="checkbox"/> Finds it hard to translates vision into strategic goals and objectives</li> <li><input type="checkbox"/> Not able to provide a sound strategic perspective</li> <li><input type="checkbox"/> Does not take into account changing circumstances when revising business strategy</li> <li><input type="checkbox"/> Hardly maintains focus on strategic plans and objectives in every day work</li> </ul>

Source: cut-e internal material

### **3.2.3.6 Ability test, personality questionnaire**

As a best choice with the best quality/price relationship we consider **Ability Tests** and **Personality Questionnaires**. These two are recently more and more used as online psychometric tools. They have high validity level and low costs.

### **3.2.3.7 Assessment centre**

As the most valid and the costliest we consider Assessment Centre and Trial Period. In **Assessment Centre** the candidates try to deal with problems that can occur in the future job they are applying for. Assessment Centre can find the most suitable candidate for the job but is very expensive for a company and there are only few companies that can afford this recruitment tool. Most expensive (and also the most valid) assessment centers combines 4 parts – tests, questionnaires, interview and previously mentioned role plays. Thus all following sectors of information gained/processed are combined. (DVOŘÁKOVÁ, Z., 2007)

### **3.2.3.8 Trial period**

In the upper right corner of the Prediction validity chart there is **Trial Period**. If a company chooses a candidate and engages him/her there is usually 3 months long Trial Period. Let's take as example of a company that will employ a wrong candidate with salary of 30.000 CZK and finally fires him/her just before the trial period is over. If we count all deducted taxes, social insurance and other related cost, we get over 120.000 CZK as a cost of the trial period. If we count costs for office, company car, telephone etc. we get even more – and we still do not mention the opportunity costs, cost for new hiring and (this is the most expensive part) lost profit.

## **4 Practical part**

### **4.1 About the company cut-e**

Within a few years after its foundation, cut-e has established itself as the most innovative provider of psychometric instruments for HR diagnostics on the web. Creative item formats, user-friendly reporting and rigorous scientific evaluation characterize the solutions provided by cut-e.

Today cut-e handles hundreds of thousands of candidate assessments each year, and supports the HR decisions of an impressive list of major companies and organizations worldwide by providing reliable, meaningful information.

### **4.2 Tools developed by cut-e**

#### ***4.2.1 scales ability testing online***

##### **4.2.1.1 Description**

For years research has shown that ability tests can be very powerful predictors of long term professional success. There are hardly any tools that provide as much value for HR decision making with as little effort as ability tests. cut-e provides advanced ability tests that fully utilize the possibilities of the web. All tests developed by cut-e use business related content and are well suitable to assess even critical candidates.

All tests developed by cut-e are web enabled and conceived in a way that it is possible to administer the tests without the presence of an administrator. Therefore all tests are not useful only for diagnostic, but also for online recruitment selection processes.

All scales test are:

- Self explainable due to interactive examples
- Forgery proof due to item generators. This unique technique generates for each participant an individual test version. This prevents forgery through sample solutions as well as learning effects due to repetition of tests



- Hardware independent due to vectors. The presentation of each task adapts to the screen settings (resolution and proportion) of the participant, so that effects through used hardware or online connections are avoided
- Accessible according to the regulations for users with disabilities

The scales tests can be dividend into several groups. On the following pages there will be information about selected scales tests from each group.

- Numerical abilities
- Verbal abilities
- Abstract logical abilities
- Specific cognitive abilities
- Special knowledge / skills

#### **4.2.1.2 Numerical abilities**

On the 4.1. Figure: Basic numeracy test there is an example of numeracy test from group numerical abilities. It measures basic numeracy. Each task of the test consists of an equation with gaps and a given result. The task is to fill the gaps with numbers so that the given result is correct.

Each test is generated by an item generator at run-time which prevents faking-good when running uncontrolled online administrations. The concept of the test prevents that participants using a calculator get any advantage. The testing time is 5 minutes and with instructions it is approximately 7 minutes.

#### 4.1. Figure: Basic numeracy test

Task is completed

5 minute(s) to go

$$3 * 5 + 2 + \text{[ ]} = 26$$

9

Drag the digits into the gaps so that the predefined result is correct.

1 4 6 7 8

explanations

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15			

next

Source: cut-e internal material

The application area of basic numeracy test is potential analysis and screening for all positions, which require a conscientious handling of numbers and a sound proficiency of the basic arithmetic functions, such as:

- Commercial professions
- Service
- Sales
- Secretariat
- Quality control

### 4.2.1.3 Verbal abilities

#### 4.2. Figure: Verbal interpretation

**scales verbal admin**

History Products Employees  
Holidays Clients Working times

12 minute(s) to go

Top Box GmbH has agreed to the regional industry-wide collective agreement.

**Working times:** For employees in **production** the 35-hour regulation still applies. So that the machines are never at a standstill, the department is manned around the clock with three shifts. The employees in **purchasing and distribution** work 37.5 hours per week. However, they work on flexi-time (they have to be present in the core work times of 9 a.m. to 4 p.m.). They also receive one hour for lunch.

**Overtime:** Overtime is not reimbursed for the employees. However, it can be compensated in the form of additional holiday entitlement.

Employees in production work around the clock in four shifts.

Explanations

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36
37	38	39	40	41	42

next ▶

Source: cut-e internal material

The verbal interpretation test on 4.2. Figure measures the ability to find and use straightforward verbal information in articles, lists and instructions for answering specific questions. As regards content the test has case study character due to a continuous company scenario.

The verbal interpretation test can be used as potential analysis and screening for all activities in administrative and commercial areas, e.g. for selection of apprentices or administrative employees. Norms are available for different age-groups and positions. The testing time is 12 minutes and including instructions it is approximately 16 minutes.

#### 4.2.1.4 Abstract logical abilities

Next test on 4.3. Figure measures deductive logical reasoning. The task is to find out the operating mode of an element by means of exploration. The answer format and surveyed additional data exclude that guessed answers are correct.

4.3. Figure: Deductive-logical reasoning

The screenshot displays the 'scales fx' test interface. At the top left is the 'scales fx' logo, and at the top right is the 'cut-e' logo. A progress bar indicates '15 minutes left'. The interface is divided into three main sections: 'known', 'explore', and 'identify'.  
- The 'known' section shows four identical logic elements. Each has two input circles (top-left: red, top-right: blue), a central diamond-shaped element, and two output triangles (bottom-left: red, bottom-right: blue).  
- The 'explore' section shows a 2x2 grid of logic elements. The top-left element has a black circle in its central diamond. The top-right element has a black diamond in its central diamond. The bottom-left and bottom-right elements have a question mark in their central diamonds. All have the same input and output configurations as the 'known' section.  
- The 'identify' section shows four logic elements, each with a question mark in its central diamond, identical in input and output to the 'known' section.  
On the right side, there is a 'help' button and a numeric keypad with buttons for numbers 1 through 12. The number 3 is highlighted in orange.

Source: cut-e internal material

Application area of the test is potential analysis and screening for all jobs and levels in IT, engineering and electrical engineering areas. Also suitable for selection of apprentices and trainees in these areas as well as for „brain-jogging“. Minimum age of a participant of test is 15 years. Norms are available for different education levels and levels of expertise.

#### 4.2.1.5 Specific cognitive abilities

The test on 4.4. Figure measures the ability to make exact observations and the capacity of the short term memory. In several subsequent sections the participant sees a number of different pictures. The task is to memorize these pictures and to mark those pictures which are identical to the ones he/she has seen before.

#### 4.4. Figure: Short term memory

The screenshot displays the 'scales stm' test interface. At the top left, there is a logo with a checkmark in a square and the text 'scales stm'. To the right is the 'cut-e' logo. Below the logo, it says 'Section 2/10'. The main instruction reads: 'Which pictures have you seen in this section? Indicate pictures identical to those you have seen by clicking within 8 seconds.' A progress bar on the right shows '6 seconds left'. The test area contains eight images in a 2x4 grid: a sun with rays, a gear, a drop inside a circle, a bird in flight, a leaf, a circular arrow, a stylized 'b', and a circular arrow with a dot. At the bottom right, there is an 'abort test' button.

Source: cut-e internal material

A HR manager can use this test as an analysis and screening for all jobs, which require making exact observations:

- Service centre
- Secretariat

- Access control
- Quality assurance
- Monitoring

The test is also suited for ,brain Jogging".

#### 4.2.1.6 Special knowledge / skills

#### 4.5. Figure: Language proficiency (English)

The screenshot shows a test interface for English (LT-E) with a 'fluency' section. The question asks to choose the correct option to fill the gap in the sentence: 'I'm very \_\_\_\_\_ that I'm late but there is a train strike on at the moment.' The options are 'sore', 'sorry', 'sorrow', 'sorrowful', and a question mark. A timer on the right indicates '2 minute(s) to go'. Below the question area are buttons for 'Explanations' and 'next >'. The 'cut-e' logo is visible in the top right corner.

Source: cut-e internal material

The test on 4.5. Figure measures adaptively the English language ability by testing the three language aspects:

- Fluency
- Vocabulary
- Spelling

Language ability tests contain a speed as well as a power component.

Application area of these tests are potential analysis and screening for all activities which require practical knowledge of a given language.

#### **4.2.2 Views – *quality characteristics***

Lets now have a closer look to one of the most used questionnaires of cut-e company focused on employees motives called „views“:

##### **4.2.2.1 Description**

Views is a system of adaptive computerized questionnaires (see 4.6. Figure: Views questionnaire) that measures individual values, motives and interests. Views is based on the adalloc measurement technology developed by cut-e. This technology makes it possible to generate highly differentiated profiles of personal values, motives and interest within very short test administration periods.

The views model consists of 18 values that are grouped into 3 areas:

- Objectives
- Relationships
- Environmental factors

The underlying model was constructed on the basis of several empirical studies of corporate cultures and job satisfaction. The model does not intend to be comprehensive regarding all possible individual values. The model underlying views has been developed to measure exclusively occupational relevant values, motives and interests in order to assess the ‘cultural fit’ of a person with a company, a department or team.

Besides individual reports of views for one person, views offers the opportunity for group reporting. Within a group report the individual views profiles of a team or department are aggregated to a 'how we are' profile. The more efficient the members cooperate, the more successful is the entire team. The success of every team depends considerably on how far all members share the same values, and to which extent they are aware of existing differences. For this purpose any existing or newly established team needs detailed and objective information regarding the structure of values, motives and interests emerging through the cooperation of the team members. views group reports provide a valuable source of information for detecting common core value and or areas for potential conflicts.

#### **4.2.2.2 Interpretation**

principles of views interpretation in a nutshell:

- Motivation as one factor amongst several (personality, knowledge, cognitive abilities, health, situational conditions) for predicting competencies and job success
- Motivation questionnaires have a fairly high validity to predict job performance
- Results of motivation questionnaires are one source for drawing a conclusion, to support and complement a mixture of assessment methods
- Motivation questionnaires are an efficient method to assess one's motivation, values and interests validly
- Motivation, values and interests distinguish between different individuals
- A disparity between the views results, which are derived from self description, and the occupational context the person is in indicates a strong need for exploration – this could indicate that the candidate has to challenge his career path or that he is under stress
- Results are generally recommended to be validated in a feedback discussion
- Comparison with reference group leads to standardized stanine scores ('standard nine')
- > 1-3: below average



- > 4-6: average
- > 7-9: above average

The predictive validity of any person's value system is especially high in situations where:

- The individual value system of the acting person is highly activated
- The acting person realizes a link between the personal values and the current options for activities
- The acting person is acting spontaneously and subconsciously.

#### **4.2.2.3 Consistency**

In addition to the scores of the views standard dimensions (motivation factors of an employee) such as working environment, fun at work, secure of work, stress etc. a consistency score is calculated and presented below the profile in the different reports. This scale measures to what extent the profile of a person shows extreme values in comparison to a norm group. The higher the consistency score, the lower the likelihood for a random response pattern. Accordingly the interpretation of results relating to a medium to high consistency score is more reliable than those relating to a low consistency score. A low consistency may be an indicator of a lack of commitment and/or openness in dealing with the instrument, linguistic issues or a limited self perception. This in turn sets narrow limits for a reliable interpretation.

#### 4.6. Figure: Views questionnaire

The screenshot displays a questionnaire interface. At the top left is a logo with a white 'V' on an orange square. A progress bar shows 'start' on the left, '0/36' in the center, and 'end' on the right. Below the progress bar, the text reads: 'How important do you rate the following aspects for your work environment? Please distribute points according to your level of agreement.'

Three items are listed for rating:

- 'The people in the company should be able to be enthusiastic about their job'
- 'A feeling of solidarity should exist in the company'
- 'Despite the serious nature of tasks one should still be able to have a fair share of fun'

Each item has a corresponding horizontal scale with a dashed vertical line in the middle and orange '+' and '-' buttons at the ends. Below these items is a section for point allocation: 'Please allocate points by using the round + and - buttons'. To the right of this text is a box labeled 'Max. 6 points to distribute:' containing six orange circles.

At the bottom of the interface are three navigation buttons: 'stop' (a square icon), 'help' (a question mark icon), and 'next' (a right-pointing triangle icon).

Source: cut-e internal material

### 4.2.3 Shapes

#### 4.2.3.1 Description

Shapes is a competency based system of adaptive computerized questionnaires (see 4.7. Figure: Shapes Questionnaire). It provides a detailed assessment of a person's competencies. Shapes is based on the adaloc measurement technology developed by cut-e. This technology allows it to get highly differentiated profiles of competencies within very short test administration and time periods.

Shapes is based on a personality model comprised of 18 personality dimensions. A combination of weighted personality dimensions loads on the individual competencies of the shapes competency model.

The construction of the shapes model aims only at competencies that have significant impact on the success of a company. The model does not intend to be comprehensive concerning all possible behaviors of a manager, and explicitly disregards competency areas which - according to the current state of scientific research - show little or no impact on a manager's personal contribution to the success of a company.

A number of empirical studies have confirmed that the competencies of the shapes model are as independent as possible from one another in order to perform highly differentiated measurements. Furthermore, the competencies have been verbally labeled and handled in a way that the results are meaningful and applicable for line managers.

#### **4.2.3.2 Interpretation**

principles of shapes interpretation in a nutshell:

- Personality as one factor amongst several (knowledge, cognitive abilities, motivation, health, situational conditions) for predicting competencies and job success
- Personality is recognized as the most important factor for job performance
- Personality questionnaires have a relatively high validity to predict job performance
- Results of personality questionnaires are one source for drawing a conclusion, to support and complement a mixture of methods
- Personality questionnaires are an efficient method to assess one's self perception validly
- Clear distinction between personality traits ('prefers to do') and cognitive abilities ('is able to do')
- Personality is fairly stable on the long-term
- Personality distinguishes between different individuals
- Natural certain discrepancy between self description and assessment by others

- A disparity between the shapes results, which are derived from self description, and other assessment results indicates a strong need for exploration – this could indicate that the candidate is under stress or that they have a different perception of the job role as measured by this construct
- Results are generally recommended to be validated in feedback discussion
- Comparison with reference group leads to standardized stanine scores (‘standard nine’)
  - > 1-3: below average
  - > 4-6: average
  - > 7-9: above average

#### 4.7. Figure: Shapes questionnaire

start 0/48 end

How accurately do these statements describe your behavior?

I enjoy selling things

I develop imaginative solutions

I like to work towards clear priorities

Please allocate points by using the round + and - buttons.

No more points to distribute:

stop help next

Source: cut-e internal material

## **4.2.4 360° Feedback**

### **4.2.4.1 Description**

Constructive feedback is a key factor in allowing managers to compare their own view of themselves with how other people see them. Through 360° feedback the managers receive information about their performance. The view is from a range of different people – from several perspectives. 360° Feedback provides their own impression of themselves with the external view. A wide range of different functions are available for entering and adding projects and candidates, for sending emails and creating various reports. The feedback providers can be selected through the system, by the managers themselves or by their superiors.

### **4.2.4.2 Feedback process**

The feedback process is controlled and supervised by an administrator. Important phases in the process are indicated on the screen by means of symbols. This enables the administrator to see the status of a project at a glance. (see 7.5. in supplements)

The phases in a feedback process are as follows:

- The focus is determined.
- The focus is requested to nominate his/her raters.
- The focus nominates his/her raters.
- The raters are requested to provide their feedback (ratings). (see 4.8. Figure: 360° Feedback)
- When all ratings have been received, the process is closed.
- Finally, an assessment is produced in the form of a detailed report (see 7.1., 7.2., 7.3., 7.4. in supplements).

In a feedback process, feedback users (focuses) are assessed by feedback providers (raters) by means of a questionnaire. The raters are persons chosen from various groups:

- Managers
- Members of staff
- Colleagues
- Others
- External clients
- Internal clients
- And the focus himself/herself (self-assessment)

A focus can also simultaneously act as a rater for another focus. A rater can participate in several feedback processes.

#### **4.2.4.3 What is 360° feedback good for?**

- Management Development
- Feedback for Senior Management
- Initiation of personal, self-directed development planning
- Initiation of manager-team-processes
- Focus on key competences

#### 4.8. Figure: 360° Feedback

Help   Show Incompletes		Self assessment				
How well do the following statements describe the person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	?
Takes responsibility for the consequences of own decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Performs well when required to speak in public	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Takes a flexible approach	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Responds rapidly to complex information with useful insights	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

1/27

Source: cut-e internal material

#### 4.2.5 Implementation of cut-e tool, “Fond ochrany životního prostředí“ case study

As an example of fully working and well established process of recruitment/development let’s now have a look on **Fond ochrany životního prostředí** case study. The company together with professional HR consultants faced following problem. Line managers and HR managers had problem to identify competencies necessary for successful performance of an employee in his job. This has a serious impact on both previously mentioned parts of HR work – recruitment and development. Thanks to the online tools the solution was quick and easy. The HR consultants from cut-e company composed a plan how to solve the problem. First there was a work shop where line manager and employees were working together and they summarized essential, preferable, negligible competencies in an online tool developed by cut-e (see 4.9. Figure Snap-it). Furthermore they put together behavioral indicators and

split them into 4 categories. The categories were poor, acceptable, ideal, irrelevant. After the competency profile is done all current employees fulfill a short 15 minutes questionnaire and results of this questionnaire are benchmarked not only against suitable norm group but also against created competency profile. HR manager can immediately see where are the strengths and weaknesses of the individual employees. As a side effect all job descriptions of positions in the company are standardized and can be immediately generated in pdf. file. The company thanks to the fact that the positions are standardizes is thinking about involving the same process into recruitment – because the competency profile is already done.

4.9. Figure: Online tool snap-it

**snap-it**  
**Vedoucí odboru COM**

instructions  context  **competencies**  behaviors

?

negligible	preferable	essential
Networking	Vision & Strategy	Initiative & Responsibility
People Development	Business Development	Bottom-line Focus
Organizational Awareness	Systematic Approach	Influence
Execution	Stability	People Management
Innovation	Effective Communication	Analysis & Judgment
Self Development	Constructive Teamwork	Professional Expertise

V2.00 © 2008 cut-e gmbh

stop save

Source: cut-e internal material



## **5 Conclusion**

In recent years we experienced a rapid expansion of computer technology and application in all areas of the organization. This trend did not overpass even HRM where we can observe the gradual integration of computer systems and accessories so that HR managers in companies facilitate their job.

As an example can be mentioned usage of online psychometric tools in recruitment and development. The main advantages of the online systems, which are generally developed just for recruitment and development, are time and space unlimited access from anywhere on the computer connected to the Internet, speed and accuracy of processing the test results, and finally, the time savings of the HR manager performing the selection or development procedure.

The practical part of the thesis summarizes the possibilities of HR online tools. The practical examples of tools developed by cut-e show how much they can be useful for the HR manager. In the case study of Fond ochrany životního prostředí are described contributions gained from using the HR online tools. The process of recruitment and development is standardized and optimized.

## 6 Resources

### Books:

ARMSTRONG, M., Řízení lidských zdrojů, Praha, Grada Publishing, 2002, 8<sup>th</sup> edition, 856 pages, ISBN 80-247-0469-2.

DVOŘÁKOVÁ, Z., and others, Management lidských zdrojů, Praha, C.H. Beck, 1<sup>st</sup> edition, 485 pages, ISBN 978-80-7179-893-4

FOOT, M., HOOK, C., Personalistika, Praha, Computer Press, 2002, 1<sup>st</sup> edition., 462 pages, ISBN 80-7226-515-6.

KASPER, H., MAYHOFER, W., Personální management: Řízení – organizace, Praha, Linde, 2005, 3<sup>rd</sup> edition, 592 pages, ISBN 80-86131-57-2.

PARKINSON, M., Psychometrické testy, Praha, Ikar, 2002, 1<sup>st</sup> edition, 159 pages, ISBN 80-249-0087-4.

SVOBODA, M., Psychologická diagnostika dospělých, Praha, Portál, 1999, 2<sup>nd</sup> edition, 344 pages, ISBN 80-7178-327-7

### Magazines:

HRKAL, F., Psychometrické on-line systémy v HR. Držíme krok se světem?, Personál magazine, 2008, Vol. XIV., n.7-8, pages 18-21.

### Other resources:


cut-e internal materials

Knowledge gained during cut-e company training “IT systems in HRM”

## **7 Supplements**

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## 7.1. Supplement : Report 360°Feedback



**mapMR**  
Multirater Feedback


Report for  
**Max Mustermann**  
Generated on 25.02.2004

This report includes confidential information that must not be disclosed to unauthorized persons.

The report is based upon the following ratings:

Self rating

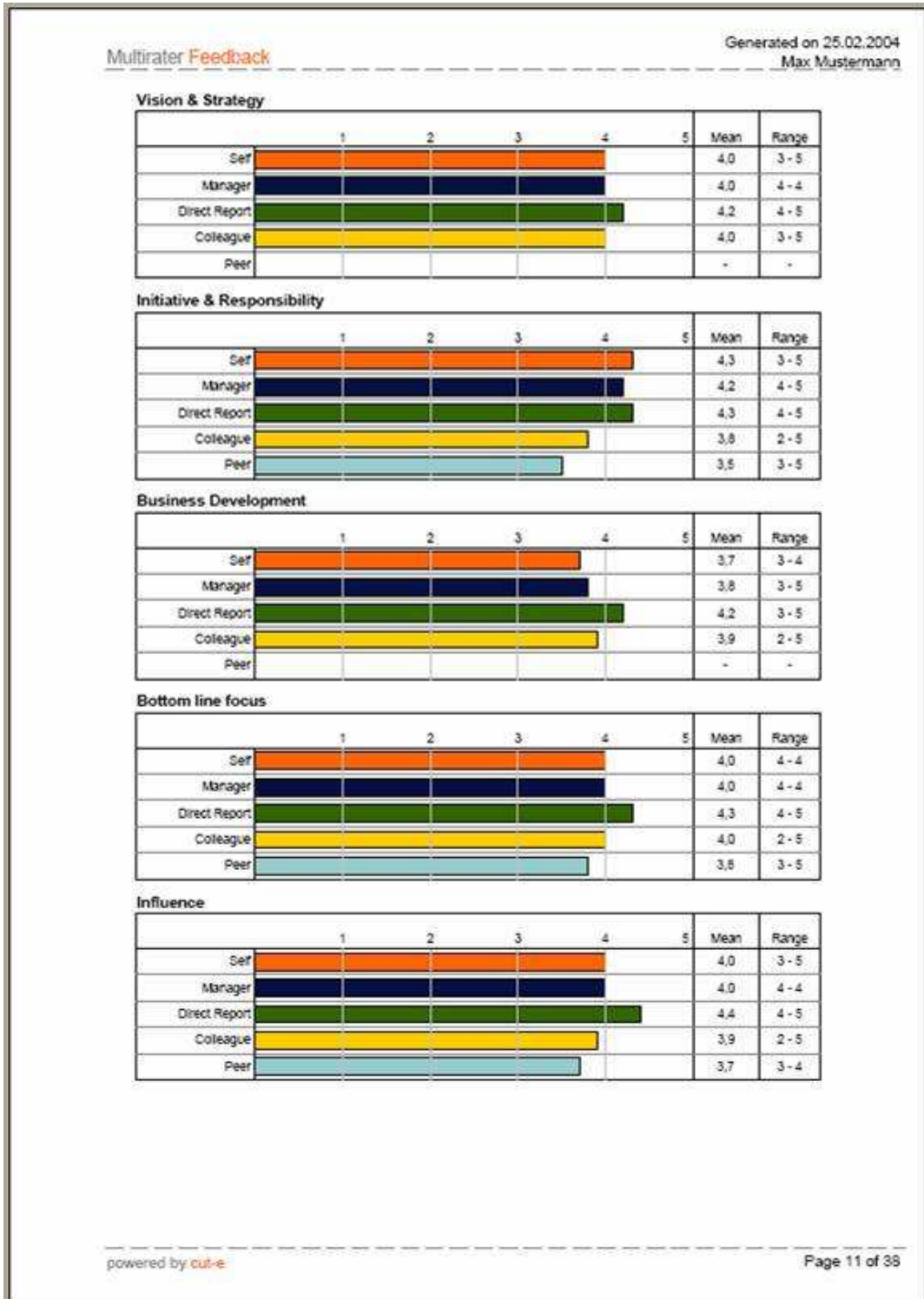
- 1 Rating(s) by manager(s)
- 8 Ratings by direct reports
- 5 Ratings by colleagues
- 3 Ratings by others



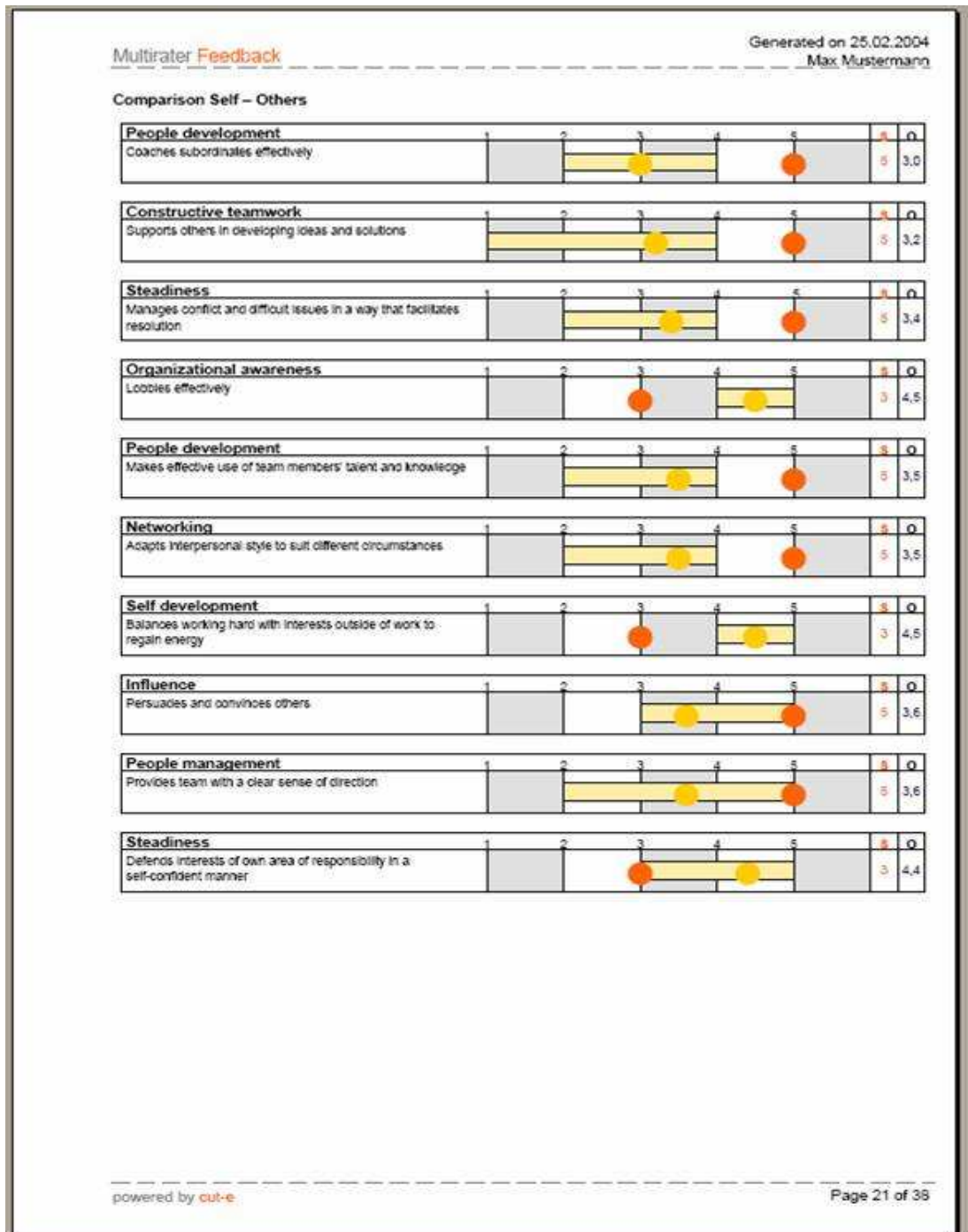
cut-e gmbh  
Kurze Mühren 13  
20095 Hamburg  
[www.cut-e.com](http://www.cut-e.com)

Telefon: 040-3250.3890  
Telefax: 040-3250.3891  
Email: [info@cut-e.com](mailto:info@cut-e.com)

7.2. Supplement : Result overview



### 7.3. Supplement : Differences in ratings



## 7.4. Supplement : Detailed result

Multirater Feedback						Generated on 25.02.2004
						Max Mustermann
<b>Bottom line focus</b>	<b>Self</b>	<b>Manager</b>	<b>Direct Report</b>	<b>Colleague</b>	<b>Peer</b>	
Views issues in commercial and financial terms	4	4	4,3 <sup>1</sup>	3,8 <sup>1</sup>	3,5 <sup>1</sup>	
		4 - 4	4 - 5	3 - 4	3 - 4	
Identifies the most cost-effective methods to reach a goal	4	4	4,0 <sup>2</sup>	4,0 <sup>1</sup>	3,5 <sup>1</sup>	
		4 - 4	4 - 4	4 - 4	3 - 4	
Shows consideration for how actions impact upon profitability	4	4	4,2 <sup>2</sup>	4,0 <sup>2</sup>	4,0 <sup>1</sup>	
		4 - 4	4 - 5	4 - 4	4 - 4	
Monitors the financial impact of own activities	4	4	4,2 <sup>3</sup>	4,0 <sup>1</sup>	4,5 <sup>1</sup>	
		4 - 4	4 - 5	4 - 4	4 - 5	
Focuses own energy on reaching results	4	4	4,7 <sup>2</sup>	4,2 <sup>1</sup>	3,0 <sup>2</sup>	
		4 - 4	4 - 5	4 - 5	3 - 3	
Identifies risks and takes appropriate precautions	4	4	4,4	3,8 <sup>1</sup>	4,0 <sup>1</sup>	
		4 - 4	4 - 5	2 - 5	4 - 4	
<b>Mean</b>	<b>4,0</b>	<b>4,0</b>	<b>4,3</b>	<b>4,0</b>	<b>3,8</b>	
<b>Influence</b>	<b>Self</b>	<b>Manager</b>	<b>Direct Report</b>	<b>Colleague</b>	<b>Peer</b>	
Creates an immediate, positive and credible impression on others	4	4	4,2	4,0 <sup>1</sup>	4,0 <sup>1</sup>	
		4 - 4	4 - 5	2 - 5	4 - 4	
Successfully promotes plans and ideas	4	4	4,6	3,8 <sup>1</sup>	4,0 <sup>1</sup>	
		4 - 4	4 - 5	3 - 4	4 - 4	
Persuades and convinces others	5	4	4,4	3,6	3,5 <sup>1</sup>	
		4 - 4	4 - 5	3 - 5	3 - 4	
Stands own ground in the face of opposition	4	4	4,1	4,5 <sup>1</sup>	4,0 <sup>1</sup>	
		4 - 4	4 - 5	4 - 5	4 - 4	
Negotiates skillfully	3	4	4,4	3,4	3,0 <sup>1</sup>	
		4 - 4	4 - 5	2 - 4	3 - 3	
Closes deals, sales or discussion with firm agreement on both sides	4	4	4,6	4,0	3,5 <sup>1</sup>	
		4 - 4	4 - 5	3 - 5	3 - 4	
<b>Mean</b>	<b>4,0</b>	<b>4,0</b>	<b>4,4</b>	<b>3,9</b>	<b>3,7</b>	
<b>Networking</b>	<b>Self</b>	<b>Manager</b>	<b>Direct Report</b>	<b>Colleague</b>	<b>Peer</b>	
Adapts interpersonal style to suit different circumstances	5	4	4,8	3,5 <sup>1</sup>		
		4 - 4	4 - 5	2 - 4		
Relates well to different types of people	4	4	4,4	3,8		
		4 - 4	4 - 5	2 - 5		
Builds a useful network of contacts and relationships	3	4	4,3 <sup>1</sup>	4,0 <sup>2</sup>		
		4 - 4	4 - 5	4 - 4		
Effectively utilizes own network to achieve objectives	4	4	4,6 <sup>1</sup>	4,0 <sup>1</sup>		
		4 - 4	4 - 5	4 - 4		
Gains support for own plans by effectively utilizing political channels	4	3	4,0 <sup>4</sup>	3,0 <sup>1</sup>		
		3 - 3	4 - 4	2 - 4		
Establishes appropriate relationships with critics and opponents	3	4	4,4	3,2 <sup>1</sup>		
		4 - 4	4 - 5	2 - 4		
<b>Mean</b>	<b>3,8</b>	<b>3,8</b>	<b>4,4</b>	<b>3,6</b>		

powered by **cut-e**

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7.5. Supplement : 360°Feedback process

