Measurement of Personality

5th Lecture

Definition of PERSONALITY

1. a: the quality or state of being a person
   b: personal existence

2. a: the condition or fact of relating to a particular person; specifically: the condition of referring adversely or disparagingly or hostilely at an individual
   b: an offensively personal remark <angrily resorted to personalities>

3. a: the complex of characteristics that distinguishes an individual or a nation or group; specifically: the totality of an individual’s behavioral and emotional characteristics
   b: a set of distinctive traits and characteristics <the energetic personality of the city>

4. a: distinction or excellence of personal and socialistic skills; a person having such quality
   b: a person of importance, prominence, renown, or notoriety <TV personality>

Examples of PERSONALITY
- He has a very pleasant personality.
- We all have different personalities.
- The psychiatrist considered behavior as well as personality before prescribing treatment.
- He has lots of personality.
- He wants to buy a car that has personality.
- She has met many television personalities.
- He was an influential personality in genetic engineering.

Origin of PERSONALITY
- Middle English personalite, from Anglo-French personalité, from Late Latin personalitatis, from personalis
- First Known Use: 15th century

Personality

refers to individual differences in characteristic patterns of thinking, feeling and behaving. The study of personality focuses on two broad areas:

- One is understanding individual differences in particular personality characteristics, such as sociability or irritability.
- The other is understanding how the various parts of a person come together as a whole.

APA, Encyclopedia of Psychology
Measurement of Personality

Personality

is an individual’s characteristic patterns of thought, emotion, and behavior, together with the psychological mechanisms – hidden or not – behind those patterns.

(Funder, 1997)

Freud legacy:

an individual possess cause-consequence structures, which are operated according to some rules and these structures and rules are influencing individual’s behavior in systematic ways.

• ID: operates according to the pleasure principle - primitive and unconscious
• EGO: operates according to the reality principle - mediates between ID and SUPEREGO
• SUPEREGO: moral/ideas and conscience

Negative theory that focused on negative instincts, drive, energy processes, defense mechanisms and motivations that lead to the construction of the personality.
Measurement of Personality

Projective Test

Rorschach inkblot test (1921)

Thematic Apperception Test (TAT) (1930–1943)

Need for Implicit Measurement

Many behaviors result from processes that operate with limited conscious control and in some cases entirely outside conscious awareness. These implicit processes are intuitive, spontaneous, unintentional, and in some cases even unconscious. They generally pertain to a broad set of:
- attitudes
- stereotypes
- motivations
- assumptions
Cannot be captured through traditional self-report methodologies.

Plato’s idea that the chariot of spirit is pulled by the mind and emotions, it is true, but - the mind is a small pony, and feelings are a large elephant. (Cameris, Lowerseak, 2006)

Hugo Münsterberg: need for exact measurement

If the evidence or absence of mental traits is to be found out in the interest of the positions to be filled, we have after all only one really reliable method, and that is to observe the mental trait itself. The help which we get from group psychology is not to be disregarded, and the well-trained observer will also be able to get some slight suggestions from the physical appearance and the features of the physiognomy. But an exact, reliable, and really satisfactory result can after all be hoped for only from the direct measurement of the special function.

If a place is to be filled, the first requirement is therefore a definite and satisfactory study of the mental traits and abilities needed for the best work in the place, and secondly an exact examination of those required mental functions in the individual case. The fundamental difference of the psychological method is the application of so-called tests by which the mental function is isolated and is exactly measured, while it is applied not to the complex tasks of practical life, but to simple, artificial material. We must consider these mental tests and their practical application.

Münsterberg (1904) Business Psychology
Measurement of Personality

Gordon Allport: Trait Theory of Personality (1921)

Traits are the fundamental elements of personality. They define the unique, generally stable characteristics of an individual.
- Trait – a neuropsychic structure having the capacity to render many stimuli functionally equivalent, and to initiate and guide an equivalent (meaningfully and consistent) form of adaptive and expressive behavior.
- Traits:
  - nomothetic - common to all people
  - idiographic - unique to the individual
    - cardinal - dominant
    - central - prevailing
    - secondary - flexible
- Values: theoretical, economic, aesthetic, social, political, and religious
- Personality is the dynamic organization within the individual of those psychophysical systems that determine his characteristic behavior and thought.

The Lexical Hypothesis

most of the socially relevant and salient personality characteristics have become encoded in the natural language (Baumgarten, 1933; Allport, 1937). Thus, the personality vocabulary contained in the dictionaries of a natural language provides an extensive, yet finite, set of attributes that the people speaking that language have found important and useful in their daily interactions.
- English language contained approximately 18,000 trait words that could describe a person – “a semantic nightmare” (Allport, 1937)
- Cattell (1943 - 1948): 18,000 words could be organized in to 16 personality factors, later – in 5 global factors.

Problems with different languages

- Five factors of personality adjectives are present in Dutch or English or German languages.
- Non-Germanic languages:
  - Hungarian - six-factor structure (Szirmák, De Raad, 1994)
  - Italian - six-factor structure (DiBias & Forci, 1997)
  - French - six-factor structure (Boies et al., 2001)
  - Hebrew - seven-factor structure (Church et al., 1997)

Saucier (2008) Recurrent Personality Dimensions in Inclusive Lexical Studies - Indications for a Big Six Structure
Universal and Culture-Specific Factors

Taxonomic research in other languages and cultures can determine the usefulness of a taxonomy in other cultural contexts and test for universals and variations in the encoding of individual differences across languages and cultures (Goldberg, 1981).

- **Evolutionary interpretation**: If the tasks most central to human survival are universal, the most important individual differences, and the terms people use to label these individual differences, would be universal as well (D. M. Buss, 1996; Hogan, 1983).

- **Cross-cultural interpretation**: Because cultures are different, there are culturally specific dimensions, and variation on that dimension may be uniquely important within that culture’s particular social context (Yang & Bond, 1990).

- **Strong conclusions about the linguistic universality of the lexically derived Big Five would be premature.**

- **The general contours of the Big Five model as the best working hypothesis of an omnipresent trait structure.**


How Factors from Eight Lexical Studies Map Onto Six Consensus Factors

Problems with determination of taxonomies of main dimensions of personalities
Measurement of Personality

Personality Variables in Context

- Personality traits are not the only relevant predictors of performance. Other predictors would include cognitive abilities, work experience, education, and motivation etc.
- Personality measures should not be used by themselves, but used in combination with other predictors for selection purposes. Personality measures are also suited for human relations training and development, career planning, or team development situations.
- Important: jobs differ in complexity:
  - In the complex jobs, the difference in performance between the best and average worker is greater than a similar comparison made for simple jobs.
  - For the more complex jobs, a valid selection system will deliver more utility to the employer than what would be obtained for simple jobs.

Traits Questionnaires: Four levels of abstraction, from specific behaviors to traits

- **LEVEL 1**: Real Responses
- **LEVEL 2**: Specific Items
  - Habits
  - Act Frequencies
  - Dispositions
- **LEVEL 3**: Characteristics
  - Specific Items
  - Habits
  - Act Frequencies
  - Dispositions
- **LEVEL 4**: Traits
  - Basic level: the specific response to a specific situation
  - Specific items on inventories: responses typically made to prototypic situations = habits, act frequencies, behavior aggregates

Functional job analysis

- Dictionary of Occupational Titles: [http://www.occupationalinfo.org](http://www.occupationalinfo.org)
- Code: 
- Title: 
- Definition:
  - Tasks
  - Knowledge
  - Skills
  - Abilities
  - Work activities
  - Work context
  - Interests
  - Work values
  - Crosswalks
Measurement of Personality

Task-based method

1. Task-based job analysis begins with a large group of identifiable job tasks. The first step would be to compile a nearly exhaustive list of tasks from available work records.
2. Next, the tasks would be made into items on a rating form.
3. Then, for each task, incumbent worker(s) would rate the task for importance, frequency, and possibly its difficulty or time requirement.
4. Finally, the ratings would be factor analyzed and used to develop performance criteria.

Job analysis—Content of the job

A description of the method used to analyze the job should be provided (essential). The work behavior(s), the associated tasks, and, if the behavior results in a work product, the work products should be completely described (essential). Measures of criticality and/or importance of the work behavior(s) and the method of determining these measures should be provided (essential). Where the job analysis also identified the knowledges, skills, and abilities used in work behavior(s), an operational definition for each knowledge in terms of a body of learned information and for each skill and ability in terms of observable behaviors and outcomes, and the relationship between each knowledge, skill, or ability and each work behavior, as well as the method used to determine this relationship, should be provided (essential). The work situation should be described, including the setting in which work behavior(s) are performed, and where appropriate, the manner in which knowledges, skills, or abilities are used, and the complexity and difficulty of the knowledge, skill, or ability as used in the work behavior(s).

Management Jobs

1. Provision of staff service. Activities would entail services performed by managers for the organization as a whole, or for operations (line) personnel.
2. Exercise of broad power and authority, such as opening and closing new manufacturing plants, making operational and financial decisions, negotiating with unions, and making long-term financial arrangements.
3. Preservation of assets, such as purchasing insurance policies, making investments, assessing legal risks, and protecting the business from fraud.
4. Technical aspects of markets and products, such as research and development, product quality, marketing, and sales.
5. Personal demands. Activities would involve the selection and retention of new managers into the organization.
6. Supervision of subordinates’ work.
7. Business control, such as cost reduction, maintenance of inventories, preparation of budgets, and assimilation of information.
8. Long-range planning. Activities would include the definition of the company’s goals, evaluating business trends, and assessing the impact of new legislation on the activities of the company.
9. Business marketing. Activities would involve product design, customer service responsibilities, and certain forms of public relations in the period to markets and products.
Measurement of Personality

Selection modes: positive and negative

- Positive selection mode: instruments are used for making positive predictions about future performance of individuals in specific situations.
- Negative selection mode: instruments are used to exclude “at risk” individuals.

Performance Criteria

Having determined what a job requires, the second step for the human resource manager is to establish standards of performance, along with a measurement system that captures those standards.

- Objective measures: Examples of “objective” or “hard” criteria would include number of items produced, sold, or scrapped for the manager’s work unit; dollar volume of good produced by the manager’s work unit; number of social service clients served; rate of efficiency of operations; safety and absence rates for those manager’s work unit, or the attainment of specific goals. The major assets of these types of criteria are that they are observable directly and would appear to involve little interpretation or guesswork. The limitation of so-called objective criteria is that many such outcomes are partially the result of environmental and economic influences, or the result of the work of a team, rather than of a single individual. Thus, a certain amount of the outcome lies beyond the control of the individual being assessed.

- Subjective measures: Ratings of work behavior, in principle, are more flexible for isolating a person’s contribution to work outcomes. The subjectivity in these criteria lends itself to possible inaccuracies in evaluation. Such inaccuracies may be inherent in the rating scheme itself or a result of errors in judgment on the part of raters using the systems. A behavioral criterion focuses on the presence or absence of a behavior, not the level of a trait.

How many criteria?

Personnel psychology recognizes no upper limit to the number of criteria that could be used in a validity study or performance appraisal system.

- A small number of measures is simpler to use for administrative purposes, and would greatly simplify a test validation study.
- Larger numbers of more detailed scales, however, are preferable for employee counseling purposes where specific feedback to the employee is desired to help improve performance.

Limitation: “the magical number 7 plus or minus 2” (Miller, 1956).
Measurement of Personality

General aspects of performance for managerial work

1. **Ability to motivate**: the extent to which the manager motivated and developed subordinates and built a cohesive work team.
2. **Problem solving and resourcefulness**: the extent to which the manager demonstrated competency in solving difficult problems and generating new ideas and strategies.
3. **Communication**: the extent to which the manager kept coworkers and upper management properly informed about important matters, and the quality and clarity of those communications.
4. **Commitment to the organization**: the extent to which the manager is committed to organizational goals and policies as demonstrated by actions.
5. **Planning and control**: how effective the manager is at maintaining control over his or her responsibilities and making workable plans to carry out objectives.

**16PF Questionnaire**

- Adapted into more than 35 languages worldwide.
- 185 multiple-choice items, with a three-point answer format. Item content is non-threatening, asking about daily behavior, interests, and opinions. The short-ability scale items (Factor B) are grouped together at the end of the questionnaire with separate instructions.
- The questionnaire is written at a fifth grade reading level, and meant for use with people 16 years and older.
- Web-based administration (introduced 1999) allows international test-users easy access to administration, scoring, and reports in many different languages, using local norms.
- IPAT (The Institute for Personality and Ability Testing, Inc.)

**16PF questions**

Questions about broad range of normal behavior. 16PF questions tend to ask about actual behavior in hypothetical situations (not about self-ratings).

- *“When I find myself in a boring situation, I usually „tune out“ and daydream about other things”* (a) true; (b) false.
- *NOT „I’m not a worrier”* (a) true; (b) false.
Measurement of Personality

16PF Global and Primary Scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>Description of Low Range</th>
<th>Description of High Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuroticism</td>
<td>High Sensitivity, Low Stimulation</td>
<td>Low Sensitivity, High Stimulation</td>
</tr>
<tr>
<td>Extraversion</td>
<td>Low Social Boldness, High Social Boldness</td>
<td></td>
</tr>
<tr>
<td>Openness to Change</td>
<td>High Experimenting, Low Experimenting</td>
<td></td>
</tr>
<tr>
<td>Social Boldness</td>
<td>Low Social Consciousness, High Social Consciousness</td>
<td></td>
</tr>
<tr>
<td>Rule-Consciousness</td>
<td>High Rule-Liveliness, Low Rule-Liveliness</td>
<td></td>
</tr>
<tr>
<td>Liveliness</td>
<td>Low Liveliness, High Liveliness</td>
<td></td>
</tr>
<tr>
<td>Dominance</td>
<td>Low Dominance, High Dominance</td>
<td></td>
</tr>
<tr>
<td>Stability</td>
<td>Low Stability, High Stability</td>
<td></td>
</tr>
<tr>
<td>Emotional Reasoning</td>
<td>Low Emotional Reasoning, High Emotional Reasoning</td>
<td></td>
</tr>
<tr>
<td>Warmth</td>
<td>Low Warmth, High Warmth</td>
<td></td>
</tr>
</tbody>
</table>

16PF Scale Names and Descriptors: Primary Scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>Descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Boldness</td>
<td>Shy, Tired, Uninterested, Resistant, Unassertive, Uncomfortable, Uncool, Socially Isolated</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>Utilitarian, Tough, Objective, Unavailable, Unemotional, Unempathetic, Unemotional, Unemotional</td>
</tr>
<tr>
<td>Vigor</td>
<td>Calm, Quiet, Unaggressive, Unconcerned, Uninterested, Unloving, Unconcerned, Unconcerned</td>
</tr>
<tr>
<td>Introverseness</td>
<td>Outgoing, Socially Oriented, Socially Engaged, Socially Participating, Aggressive, Open to Change, Open to New Ideas</td>
</tr>
<tr>
<td>Responsiveness to Change</td>
<td>Rigid, Resistant, Unwilling to Change, Unwilling to Change, Unwilling to Change, Unwilling to Change, Unwilling to Change, Unwilling to Change</td>
</tr>
<tr>
<td>Self-Relaxation</td>
<td>Group-oriented, Affiliative, Socially Oriented, Socially Oriented, Socially Oriented, Socially Oriented, Socially Oriented, Socially Oriented</td>
</tr>
<tr>
<td>Tolerance for Disorder</td>
<td>Tolerated Disorder, Unassimilated, Unorganized, Unself-disciplined, Unself-disciplined, Unself-disciplined, Unself-disciplined, Unself-disciplined</td>
</tr>
</tbody>
</table>

16PF Description of Primary Scales

<table>
<thead>
<tr>
<th>Primary Scale</th>
<th>Description (Designed to Measure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warmth</td>
<td>Warmth in personal relationships, and the desire to emotionally exchange with people</td>
</tr>
<tr>
<td>Anxiousness</td>
<td>Intelligence, Trait Measure</td>
</tr>
<tr>
<td>Emotional Stability</td>
<td>Emotional coping with everyday life and difficulties, emotional reactions, and emotional well-being</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>Conscientiousness, Conscientiousness, Conscientiousness, Conscientiousness, Conscientiousness, Conscientiousness, Conscientiousness, Conscientiousness</td>
</tr>
<tr>
<td>Constraint</td>
<td>Conformity and respect for social and personal rules</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>The degree to which people follow and respect rules</td>
</tr>
<tr>
<td>Warmth</td>
<td>Social adaptability and sociability</td>
</tr>
<tr>
<td>Extraversion</td>
<td>Social adaptability and sociability</td>
</tr>
<tr>
<td>Dominance</td>
<td>Socially dominant and influential</td>
</tr>
<tr>
<td>Stability</td>
<td>Socially dominant and influential</td>
</tr>
<tr>
<td>Emotional Stability</td>
<td>Socially dominant and influential</td>
</tr>
<tr>
<td>Introverseness</td>
<td>Socially dominant and influential</td>
</tr>
<tr>
<td>Responsiveness to Change</td>
<td>Socially dominant and influential</td>
</tr>
<tr>
<td>Self-Relaxation</td>
<td>Socially dominant and influential</td>
</tr>
<tr>
<td>Reasoned</td>
<td>Socially dominant and influential</td>
</tr>
<tr>
<td>Tolerance for Disorder</td>
<td>Socially dominant and influential</td>
</tr>
<tr>
<td>Reassurance</td>
<td>Socially dominant and influential</td>
</tr>
<tr>
<td>Persistence</td>
<td>Socially dominant and influential</td>
</tr>
<tr>
<td>Tolerance</td>
<td>Socially dominant and influential</td>
</tr>
<tr>
<td>Warmth</td>
<td>Socially dominant and influential</td>
</tr>
</tbody>
</table>

3/12/13
Measurement of Personality

16PF Response Style Indices

<table>
<thead>
<tr>
<th>Scale</th>
<th>High Score</th>
<th>Low Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM Impression Management</td>
<td>Socially Desirable</td>
<td>Socially Undesirable</td>
</tr>
<tr>
<td>INF Infrequency</td>
<td>Frequent Middle Responses</td>
<td>Infrequent Middle Responses</td>
</tr>
<tr>
<td>ACS Acquiescence</td>
<td>True Response Repeated</td>
<td>Balance of True/False Responses</td>
</tr>
</tbody>
</table>

Response Styles are indications of the manner in which the individual answered the questions:
- **Impression Management** expresses the degree that the test taker responses are socially desirable or undesirable.
- **Infrequency** indicates the number of middle or noncommittal responses on the part of the test taker.
- **Acquiescence** indicates the degree to which the test taker agreed to items no matter what the question asked.

16PF Scale Names and Descriptors: Global Scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>Descriptors of Low Range / Left Meaning</th>
<th>Descriptors of High Range / Right Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX Extraversion</td>
<td>Introverted, Sociable</td>
<td>Extroverted, Participating</td>
</tr>
<tr>
<td>AX Anxiety Neuroticism</td>
<td>Low Anxiety, Unperturbable</td>
<td>High Anxiety, Perturbable, Emotionally Unstable, Stress-prone</td>
</tr>
<tr>
<td>TM Tough-Mindedness</td>
<td>Intuitive</td>
<td>Tough-Minded, Resilient, Unempathic</td>
</tr>
<tr>
<td>IM Independence</td>
<td>Accommodating, Agreeable</td>
<td>Independent, Persuasive, Willful</td>
</tr>
<tr>
<td>SC Self-Control</td>
<td>Unrestrained, Follows Urges</td>
<td>Self-Controlled, Inhibits Urges</td>
</tr>
</tbody>
</table>

- Global traits provide a broad overview of personality.
- Primary traits provide the more detailed information about the richness and uniqueness of the individual.

Meaning of Global Scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX Extraversion</td>
<td>The extent to which an individual's time and energy are focused on interpersonal relationships, as opposed to seeking more time alone and working independently on tasks.</td>
</tr>
<tr>
<td>AX Anxiety Neuroticism</td>
<td>The extent to which an individual has a forceful, assertive and independent influence on their environment, or a more cooperative, collaborative style of functioning.</td>
</tr>
<tr>
<td>TM Tough-Mindedness</td>
<td>The tendency to have an intuitive, creative thinking style, or a more objective, realistic way of thinking.</td>
</tr>
<tr>
<td>IM Independence</td>
<td>The tendency for self-discipline and self-control, or adopting a more unrestrained, flexible approach.</td>
</tr>
<tr>
<td>SC Self-Control</td>
<td>Different styles of coping with pressure, disappointments, challenges, setbacks and other stressful circumstances.</td>
</tr>
</tbody>
</table>
The super factors of personality:
third-order factors

<table>
<thead>
<tr>
<th>Third-order factors</th>
<th>Rotated Factor 1</th>
<th>Rotated Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraversion</td>
<td>0.421</td>
<td>0.493</td>
</tr>
<tr>
<td>Independence</td>
<td>0.460</td>
<td>-0.322</td>
</tr>
<tr>
<td>Anxiety</td>
<td>-0.438</td>
<td>0.801</td>
</tr>
<tr>
<td>Self-control</td>
<td>0.013</td>
<td>0.119</td>
</tr>
</tbody>
</table>

- **Factor I** involves human activities that are directed outward toward the world. It encompasses tendencies to move assertively outward into the world toward both social connection and toward exploration/mastery of the environment, and might be called active outward engagement.
- **Factor II** involves internal types of processes and events. Factor II might be called self-disciplined practicality versus unrestrained creativity.

16 PF Test–retest reliability

For the 16PF primary scales, test-retest reliabilities average 0.80 over a two-week interval (ranging from 0.69 to 0.87), and 0.70 over a two-month interval (ranging from 0.56 to 0.79). The five global scales of the 16PF Questionnaire show higher test–retest reliabilities (they have more items); they average 0.87 for a two week interval (ranging from 0.84 to 0.91), and 0.79 for a two-month interval (ranging from 0.70 to 0.82).

International 16PF editions show strong test–retest reliabilities:
- Two-week test–retest reliabilities for the Norwegian edition average 0.80 for primary scales and 0.87 for global scales (IPAT, 2004b);
- for the German edition, primary scale reliabilities average 0.83 over a one month interval (Schneewind and Graf, 1998);
- for the Danish edition, primary scale reliabilities average 0.86 over a two-week interval (IPAT, 2004c);
- for the French edition, one-month reliabilities average 0.73 (IPAT, 1995)

16 PF Internal Consistency

- Internal consistency estimates for the 16PF primary scales on a sample of 4,660, range from 0.66 to 0.86, with a mean of 0.75 (Conn and Rieke, 1994).
- Internal consistency for international versions of the instrument meets professionally accepted standards, Cronbach alphas averages:
  - 0.74 in the German edition (Schneewind and Graf, 1998),
  - 0.72 in the French edition (Rolland and Mogenet, 1996),
  - 0.75 in the Japanese edition (IPAT, 2007),
  - 0.69 in the Chinese edition (Jia-xi and Guo-peng, 2006),
  - 0.73 in the Spanish-American or Pan-Spanish edition (H.E.P. Cattell, 2005).
Measurement of Personality

16PF Factorial Validity

- Dancer and Woods (2007) factor-analyzed the primary traits in a sample of 4,414 business employees and found strong support for the 16PF global factor structure.
- R. Gorsuch (pers. comm., February 2007) factor-analyzed the primary traits to find the global traits on a sample of 11,000 test-takers, and then applied a common factor analysis to the globals to confirm the third order factors.
- Hofer et al. (1997) used confirmatory factor analysis and structural equation modeling tests of factorial invariance to study the measurement properties of the questionnaire across six large, diverse, samples (n = 30,732), and concluded that ‘the factor structure of the 16PF holds remarkably well across radically different samples of people, across gender, and across different forms of the 16PF’.
- Factor analyses of international editions have also confirmed the structure of the 16PF primary and global traits.

16PF Construct Validity

- Correlations between the 16PF primary and global scales and a range of other measures of normal, adult personality:
  - California Psychological Inventory (Gough, 1987),
  - Myers-Briggs Type Indicator (Myers and McCaulley, 1985),
  - NEO-PI-R (Costa and McCrae, 1992a),
  - Personality Research Form (Jackson, 1989),
  - Coopersmith Self-Esteem Inventory (Coopersmith, 1981),
  - Holland occupational themes,
  - other measures of creativity, leadership, and social skills.

16PF Predictive Validity

Instrument has been effective in predicting:
- creativity (Guastello and Rieke, 1993b),
- social skills and empathy (Conn and Rieke, 1994),
- marital compatibility (Russell, 1995),
- leadership potential (Conn and Rieke, 1994),
- over a hundred occupational profiles (Cattell, R.B. et al., 1970; Conn and Rieke, 1994; Schuerger and Watterson, 1998; Walter, 2000).
16PF Uses and Applications

Questionnaire is used in a wide range of settings, including industrial/organizational, counseling and clinical, basic research, educational, and medical settings.

- Powerful tool for industrial/organization applications, such as:
  - employee selection,
  - promotion,
  - development,
  - coaching, or
  - outplacement counseling
  - career counseling

Employee selection, promotion, and development

The 16PF Questionnaire has proven itself in making a range of organizational decisions, such as employee hiring, promotion, development, coaching, outplacement, and retirement counseling.

Predicts:
- a wide variety of occupational profiles (Cattell, R.B. et al., 1970; Conn and Rieke, 1994; Guastello and Rieke, 1990a, 1990b; Russell and Karol, 2002; Schuerger and Watterson, 1998; Walter, 2000)
- creativity (Guastello and Rieke, 1990b)
- leadership styles (Watterson, 2002)
- team roles and team climate (Burch and Anderson, 2004; Fisher et al., 1998),
- social skills (Conn and Rieke, 1994),
- job training success (Tango and Kolodinsky, 2004),
- job satisfaction (Lounsbury et al., 2004),
- punctuality, job preparedness, and ability to work alone (IPAT, 2004a),
- call-center customer service performance (Williams, 1999),
- leadership effectiveness ratings (Hetland and Sandel, 2003).

Generalized Validity of Big Five Traits with Managerial Performance

<table>
<thead>
<tr>
<th>16PF Trait (Secondary)</th>
<th>Big Five Trait</th>
<th>N of Cases</th>
<th>N of Correlations</th>
<th>Average Correlation</th>
<th>Correlation Coefficient</th>
<th>90% CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraversion</td>
<td>Extraversion</td>
<td>11,335</td>
<td>81.11</td>
<td>0.14</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>Emotional Stability</td>
<td>10,324</td>
<td>56.05</td>
<td>0.05</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>Tough Rugged</td>
<td>Agreeable</td>
<td>6,947</td>
<td>47.06</td>
<td>0.10</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Behavioral Control</td>
<td>Conscientious</td>
<td>10,038</td>
<td>52.09</td>
<td>0.23</td>
<td>0.23</td>
<td></td>
</tr>
<tr>
<td>Independence</td>
<td>Openness</td>
<td>7,611</td>
<td>37.05</td>
<td>0.08</td>
<td>0.12</td>
<td></td>
</tr>
</tbody>
</table>

90% CV (confidence value) is a lower bound for the population correlation coefficient (ρ); if the 90% CV is 0.00 or less, then there is no significant relationship between that class of variables and work performance.
Measurement of Personality

16PF Leadership Profile

The Leadership Potential Index for the 16PF is a composite of first-order traits that were first identified in an experimental leadership situation. Military personnel (N = 800) were divided into small leaderless groups. The leaders who emerged from these groups displayed several common characteristics:

- capability for abstract thought (B+)
- conscientiousness or tendency toward conformity (G+)
- practicality (M-)
- conservatism (Q1-)
- self-confidence (O-)
- dominance (E+)

High scores on the composite (B+; G+; M-; Q1; O-; E+) describe people who are socially skilled and self-confident, have good organizational skills, and are attentive to job details and follow-through.

(Cattell & Stice, 1954)

16PF Leaders Personality Profiles

- Elected leaders who stayed elected throughout the procedure displayed several characteristics (at least 0.5 SD above or below the population mean): warmth (A+), intelligence (B+), cheerfulness (F+), conscientiousness (G+), socially bold (H+), trustful (L-), self-assured (O-), conservative (Q1-), group-dependent (Q2-), self-disciplined (Q3+), and relaxed rather than tense (Q4-).
- Effective leaders were less sociable (A-), self-sufficient (Q2+) and emotionally stable (C+). They shared five other characteristics with the elected leaders (B+, F+, G+, H+, Q3+, Q4-).
- Technical Leaders took on leadership roles only intermittently as the situations appeared to have warranted. Technical leaders were consistent with elected and effective leaders on the basis of B+, G+, H+, Q3+, Q4-. They were similar to elected leaders only on the basis of O- and F+. They were also consistent with effective leaders on the basis of C+. Their unique characteristics, compared to the other two groups, were relatively high dominance (E+) and imagination (M+).

16PF Leadership Potential Index

<table>
<thead>
<tr>
<th>Trait</th>
<th>Effective Military Leaders (N = 43)</th>
<th>Business Executives, Sample A (N = 178)</th>
<th>Business Executives, Sample B (N = 226)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>7.8  1.37</td>
<td>6.4  1.52</td>
<td>6.1  1.50</td>
</tr>
<tr>
<td>B</td>
<td>5.2  0.96</td>
<td>6.6  1.18</td>
<td>6.5  1.34</td>
</tr>
<tr>
<td>C</td>
<td>6.2  1.05</td>
<td>7.3  1.09</td>
<td>7.0  1.03</td>
</tr>
<tr>
<td>D</td>
<td>5.5  0.90</td>
<td>6.4  1.04</td>
<td>6.2  1.01</td>
</tr>
<tr>
<td>E</td>
<td>5.9  1.16</td>
<td>6.1  1.17</td>
<td>6.0  1.15</td>
</tr>
<tr>
<td>F</td>
<td>6.1  1.07</td>
<td>6.9  1.17</td>
<td>6.4  1.13</td>
</tr>
<tr>
<td>G</td>
<td>6.1  1.07</td>
<td>6.9  1.17</td>
<td>6.4  1.13</td>
</tr>
<tr>
<td>H</td>
<td>5.6  0.93</td>
<td>6.6  1.04</td>
<td>6.3  1.01</td>
</tr>
<tr>
<td>I</td>
<td>5.5  0.90</td>
<td>6.7  1.07</td>
<td>6.5  1.02</td>
</tr>
<tr>
<td>J</td>
<td>5.5  1.00</td>
<td>6.4  1.10</td>
<td>6.3  1.02</td>
</tr>
<tr>
<td>K</td>
<td>4.9  1.30</td>
<td>5.9  1.34</td>
<td>5.8  1.37</td>
</tr>
<tr>
<td>L</td>
<td>6.1  1.07</td>
<td>6.9  1.17</td>
<td>6.4  1.13</td>
</tr>
<tr>
<td>M</td>
<td>5.5  0.90</td>
<td>6.6  1.04</td>
<td>6.3  1.01</td>
</tr>
<tr>
<td>N</td>
<td>5.9  1.16</td>
<td>6.9  1.17</td>
<td>6.4  1.13</td>
</tr>
<tr>
<td>O</td>
<td>5.9  1.16</td>
<td>6.9  1.17</td>
<td>6.4  1.13</td>
</tr>
<tr>
<td>P</td>
<td>6.1  1.16</td>
<td>6.9  1.17</td>
<td>6.4  1.13</td>
</tr>
<tr>
<td>Q1</td>
<td>5.6  1.00</td>
<td>6.6  1.10</td>
<td>5.9  0.91</td>
</tr>
<tr>
<td>Q2</td>
<td>6.0  1.16</td>
<td>6.2  1.04</td>
<td>6.4  1.02</td>
</tr>
<tr>
<td>Q3</td>
<td>5.5  0.90</td>
<td>6.6  1.04</td>
<td>6.3  1.01</td>
</tr>
<tr>
<td>Q4</td>
<td>5.6  0.90</td>
<td>6.4  1.04</td>
<td>6.2  1.01</td>
</tr>
</tbody>
</table>

Leadership Traits for Effective Military Leaders and Business Executives

- Elected leaders who stayed elected throughout the procedure displayed several characteristics (at least 0.5 SD above or below the population mean): warmth (A+), intelligence (B+), cheerfulness (F+), conscientiousness (G+), socially bold (H+), trustful (L-), self-assured (O-), conservative (Q1-), group-dependent (Q2-), self-disciplined (Q3+), and relaxed rather than tense (Q4-).
- Effective leaders were less sociable (A-), self-sufficient (Q2+) and emotionally stable (C+). They shared five other characteristics with the elected leaders (B+, F+, G+, H+, Q3+, Q4-).
- Technical Leaders took on leadership roles only intermittently as the situations appeared to have warranted. Technical leaders were consistent with elected and effective leaders on the basis of B+, G+, H+, Q3+, Q4-. They were similar to elected leaders only on the basis of O- and F+. They were also consistent with effective leaders on the basis of C+. Their unique characteristics, compared to the other two groups, were relatively high dominance (E+) and imagination (M+).
Sample-population Comparisons of Leadership Traits for Financial Executives

<table>
<thead>
<tr>
<th>Trait</th>
<th>Sample Mean</th>
<th>Population Mean</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6.74</td>
<td>3.95</td>
<td>0.254</td>
<td>204</td>
<td>0.019</td>
</tr>
<tr>
<td>B</td>
<td>7.14</td>
<td>7.74</td>
<td>0.578</td>
<td>204</td>
<td>0.59</td>
</tr>
<tr>
<td>C</td>
<td>5.93</td>
<td>1.93</td>
<td>0.002</td>
<td>204</td>
<td>0.97</td>
</tr>
<tr>
<td>D</td>
<td>7.63</td>
<td>5.24</td>
<td>0.381</td>
<td>204</td>
<td>0.62</td>
</tr>
<tr>
<td>E</td>
<td>6.98</td>
<td>4.80</td>
<td>0.339</td>
<td>204</td>
<td>0.58</td>
</tr>
<tr>
<td>F</td>
<td>7.02</td>
<td>5.39</td>
<td>0.395</td>
<td>204</td>
<td>0.63</td>
</tr>
<tr>
<td>G</td>
<td>4.74</td>
<td>-2.51</td>
<td>0.110</td>
<td>204</td>
<td>0.33</td>
</tr>
<tr>
<td>H</td>
<td>5.40</td>
<td>-0.33</td>
<td>0.000</td>
<td>204</td>
<td>0.00</td>
</tr>
<tr>
<td>I</td>
<td>5.79</td>
<td>1.04</td>
<td>0.002</td>
<td>204</td>
<td>0.05</td>
</tr>
<tr>
<td>J</td>
<td>4.49</td>
<td>-3.54</td>
<td>0.212</td>
<td>204</td>
<td>-0.46</td>
</tr>
<tr>
<td>K</td>
<td>4.35</td>
<td>-4.83</td>
<td>0.342</td>
<td>204</td>
<td>-0.59</td>
</tr>
<tr>
<td>L</td>
<td>6.88</td>
<td>4.83</td>
<td>0.340</td>
<td>204</td>
<td>0.58</td>
</tr>
<tr>
<td>M</td>
<td>5.14</td>
<td>-1.35</td>
<td>0.019</td>
<td>204</td>
<td>-0.14</td>
</tr>
<tr>
<td>N</td>
<td>5.81</td>
<td>1.35</td>
<td>0.014</td>
<td>204</td>
<td>0.14</td>
</tr>
<tr>
<td>O</td>
<td>5.52</td>
<td>-0.56</td>
<td>0.000</td>
<td>204</td>
<td>0.00</td>
</tr>
<tr>
<td>P</td>
<td>7.05</td>
<td>4.91</td>
<td>0.349</td>
<td>204</td>
<td>0.59</td>
</tr>
</tbody>
</table>

Significant differences between the sample and population were noted for nine variables: A+, B+, E+, F+, G+, I-, N-, O-, Q1+.

**16PF Manager Personality Profiles**

- **Top-level executives** whose roles involve developing long-term, innovative goals, tend to score higher on Openness-to-Change (Q1+), Abstractedness (M+), Reasoning Ability (B+); average (below other managers) on Extraversion traits such as Warmth (A), Forthrightness (N), and Group-Orientation (Q2); and average to below on Rule-Consciousness (G–). (H.B. Cattell, 1969; Walter, 2000; Watterson, 2002).

- **Managers** who are in applied manufacturing and operations roles tend to score below average on Abstractedness (M–) and Sensitivity (I–), and above average on Rule-Consciousness (G+) and Perfectionism (Q3+).

**16PF: personalities of entrepreneurs**

- **Personalities of entrepreneurs** are significantly below average on anxiety traits – low on Apprehensiveness (Self-Assured (O–)) and above average on Emotional Stability (C+). They were also above average on Independence and its traits of Dominance (E+), Social Boldness (H+), and Openness-to-Change (Q1+). They were also higher on Self-Reliance (Q2+), Rule-Consciousness (G+), and Reasoning Ability (B+), and low on Sensitivity (Utilitarian (I–)). (Aldridge, 1997)

- **Traits that distinguished entrepreneurs from other executives:** Innovative thinking (Openness-to-Change (Q1+)); ability to step back and focus on the ‘big picture’ (Abstractedness (M+)); and a preference for working independently (Self-Reliance (Q2+)); (H.B. Cattell, 1989; H.B. Cattell and H.E.P. Cattell, 1997). Entrepreneurs tended to be less sociable than regular managers (low Warmth (A–), and low Trust (L–)), and prefer to work independently (Self-Reliance (Q2+)). (Aldridge, 1997; Fraboni and Saltstone, 1990)
Measurement of Personality

16PF profile for effective salespeople
Salespeople tend to be:
• high on Extraversion and its traits of Warmth (A+), Social Boldness (H+), Liveliness (F+), and Group-Orientation (Q2−).
• low on Anxiety and its sub-traits of Apprehensiveness (Self-Assured (O−)), Vigilance (Trusting (L−)),
• high on Emotional Stability (C+).
• above average on Independence and its traits of Social Boldness (H+) and Dominance (E+).
• above average on Rule-Consciousness (G+) and Reasoning Ability (B+).
Salespeople tend to be generally similar to managers; however, salespeople tend to be even higher on the traits of Extraversion (especially F+, H+, and A+) and lower on Anxiety traits (more Self-Assured (O−), and are Stable (C+)).(Cattell, R.B. et al., 1970; Guastello and Rieke, 1993b; Rieke and Russel, 1987; Schuerger and Watterson, 1991; Tucker, 1991; Walter, 2000).

Personalities of social/helping occupations
People in social/helping occupations (teaching, counseling, customer service, human resource personnel, ministers/priests, nurses, and physical therapists) tend to be:
• above average on Extraversion, and particularly on Warmth (A+);
• below average on Tough-Mindedness (in the Receptive/open direction)
• above average on Sensitivity (I+) and Open-to-Change (Q1+).
• below average on Anxiety: Relaxed (Q4−), Self-Assured (O−), Trusting (L−), and Emotionally Stable (C+).
• above average on Self-Control traits of Perfectionism (Q3) and Rule-Consciousness (G+)

Protective service officers Personalities
Protective service officers (police officers, prison guards, firefighters etc) tend to be:
• calm and resilient under stress (low Anxiety, Emotionally Stable (C+); Self-Assured (O−); and Trusting (L−)).
• responsible, self-disciplined, and task-focused (high self-control; Rule-Conscious, G+; Perfectionistic, Q3+; Practical, M−; and Serious, F−).
• tough and pragmatic (high on Tough-Mindedness; Unsentimental (−); Practical (M−); and Traditional (Q1−)).
• consistently bold and fearless (high on Social Boldness (H+), but not on other Extraversion traits), and somewhat above average on Dominance (E+).
16PF and Leadership Styles

- **The Assertive Style** is characterized by the use of persuasion to accomplish objectives. A later study of 185 managers (Sweney & Fiechtner, 1977) showed that the Assertive Style can be characterized by seven 16PF variables: dominance (E+), cheerfulness (F+), conscientiousness (G+), experimentalism (H+), action (M+), and self-reliance (O+). The assertiveness composite has since been correlated with Leadership Potential (IPAT, 1987).

- **The Facilitative Style** is characterized by the use of example and involvement to attain objectives (Sweney, 1977). The Facilitative Style can be described by six 16PF variables: conscientiousness (I+), cheerfulness (J+), imagination (M+), prudence (H+), and lack of tension (Q4-). High scores on the Facilitative Style composite would typify the team builder.

- **The Permissive Style** emphasizes the maintenance of harmony and the avoidance of conflict (Sweney, 1977). Persons exhibiting Permissive Style would be characterized by the 16PF variables: rationalization (N+), thoughtfulness (R+), and conscientiousness (S+). Sweney and Fiechtner (1977) showed that the Permissive Style was negatively correlated with Leadership Potential (IPAT, 1987). According to Sweney (1970), a leader may use any of the three styles interchangeably, although any one particular style may predominate for an individual.

16PF Integration of Core Leadership Traits and Leadership Styles

<table>
<thead>
<tr>
<th>Primary Personality Trait</th>
<th>Leadership Styles</th>
<th>Relator Composite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Facilitative style:iele, put the primary needs of the group ahead of their own selfish wants. Balances. Authoritative style: take a position, dominate; use of authority. Visionary & creative style: live more in the future, they use the imaginary future as a way to motivate followers.
Measurement of Personality

Traits that further affect style, but not overall leadership potential

<table>
<thead>
<tr>
<th>Primary Personality Trait</th>
<th>Leadership Styles</th>
<th>Relevant Opposite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warm, outgoing (A+)</td>
<td>Autocratic</td>
<td>(A-)</td>
</tr>
<tr>
<td>Skepticism (directed at people rather than ideas) (L+)</td>
<td>Left</td>
<td>Right</td>
</tr>
<tr>
<td>Experimental critical, open-minded (Q1+)</td>
<td>Left</td>
<td>Right</td>
</tr>
<tr>
<td>Relaxed, tranquil, composed (Q4-)</td>
<td>Left</td>
<td>Left</td>
</tr>
</tbody>
</table>

The 16PF Questionnaire and Empathy

Empathy is viewed as either knowing how others feel (a cognitive appraisal) or having the ability to experience the emotions of others as a way of understanding how they feel (a more emotional appraisal).

Individuals who are empathetic are more likely to be helpful to others when asked, more well adjusted, and seen as more agreeable and socially skilled.

- Empathetic individuals tend to be more Socially Bold (H+), Warm (A+), Emotionally Stable (C+), Open to Change (Q1+) and Lively (F+) than non-empathic people.
- In addition, empathetic individuals are less Vigilant (L-) and Tense (Q4-) than non-empathic people.

The 16PF Questionnaire and Self-Esteem

Self-esteem is an individual’s evaluation of their own self-worth. It is a concept “similar to self-concept, self-acceptance, self-worth, self-confidence, self-assurance, and self-efficacy”

- People who are higher in self-esteem are generally happier and more self-satisfied. They are also more likely to persist in the face of obstacles than are individuals who are low in self-esteem.
- Individuals who higher in self-esteem are Warm (A+), Emotionally Stable (C+), Socially Bold (H+), Private (N+), and Open to Change (Q1+). They are also less Abstracted (M-) and less Apprehensive (O-).
Measurement of Personality

The 16PF Questionnaire and Adjustment

Psychological adjustment has been described in many ways, from life satisfaction, positive emotions and wellbeing to successful adaptation to life.

- Well adjusted individuals tend to be Emotionally Stable (C+), Trusting (L-), and Self-Assured (O-).
- Emotional adjustment refers to predominately experiencing positive emotions, with few ups and downs in mood. Emotionally adjusted individuals are also less Abstracted (M-) and experience less physical Tension (Q4-).
- Social adjustment refers to adapting to social demands in a proactive manner. Socially adjusted individuals, on the other hand are more Assertive (E+), Socially Bold (H+), Sensitive (I+), as well as less Self-Reliant (Q2-).

The 16PF Questionnaire and Creativity

Creative individuals are Abstracted (M+), Open to Change (Q1+), Self-Reliant (N+), and Perfectionistic (Q3+).

- Creative individuals working in science and industry are also Reserved (A-), Socially Bold (H+), and Utilitarian (I-).
- Creative individuals involved in the arts are Warm (A+), Lively (F+) and Sensitive (I+).
- The differences between creativity in science and industry versus the arts are primarily centered around global factor Tough-Mindedness. Creativity in science and industry is oriented toward Tough-Mindedness while the arts are more oriented toward the tender-minded pole.

The 16PF Questionnaire and Social Skills

The term 'social skills' includes an array of knowledge, skills, and abilities related to interacting with other people.

- Emotional expression - sending of nonverbal signals to communicate affect, attitudes, and status. Emotionally expressive individuals are Assertive (E+), Socially Bold (H+), Forthright (N-), Driven (Q4+), and Expedient (G-).
- Emotional sensitivity - skill in understanding other peoples’ nonverbal signals. Emotionally sensitive individuals are Warm (A+) and Open (Q1+).
- Emotionally controlled individuals consistently monitor and regulate their emotional and nonverbal communications. These individuals are Private (N+), and Self-Assured (O-).
- Verbal speaking skills and the ability to engage other people in social situations is the cornerstone of social expression. Socially expressive people are Lively (F+), Socially Bold (H+), Forthright (N-), and Open to Change (Q1+).
- Social sensitivity - an individual's ability to understand verbal communication and knowledge of social norms. Socially sensitive people are Warm (A-), Emotionally Reactive (C-), Modest (H-), Apprehensive (Q1-), Traditional (Q2-), and Driven (Q4+).
- Self-presentation skill is encompassed by social control. Individuals high in social control readily adapt their behavior to fit their perception of the social situation. Socially controlled individuals are Assertive (E+), Socially Bold (H+), Open to Change (Q1+), Perfectionistic (Q3+), and Trusting (L-).
Measurement of Personality

16PF parallel versions

- 16PF Adolescent Personality Questionnaire measures the 16PF traits in 12–18 year olds (Schuering, 2001).
- A shorter (20-minute) version of the questionnaire, consisting of a subset of somewhat-shortened scales, was developed for use in employee selection settings – the 16PF Select (Cattell, R.B. et al., 1999).
- The 16PF Express (Gorsuch, 2006) provides a very short, 15-minute measure of all the traits (with four or five items per factor).
- The 16PF traits also appear in the PsychEval Personality Questionnaire (PEPQ; Cattell, R.B. et al., 2003), a comprehensive instrument which includes both normal and abnormal personality dimensions.

The 16PF Select

is a shortened form of the 16PF Fifth Edition Questionnaire developed specifically for use in personnel selection situations (Cattell, et al., 1993; Kelly, 1999).

- The 16PF Select contains 107 items that encompass 12 primary personality factor scales and three response style indices.
- The 12 scales of the 16PF Select are: Warmth, Calmness, Dominance, Liveliness, Rule-Consciousness, Social Boldness, Trust, Imagination, Self-Assuredness, Open-Mindedness, Self-Reliance, and Organization.
- Each scale contains 8 or 9 items.
- The response style indices impression management, acquiescence, and infrequency.
Recommendations for further reading


IPAT (the Institute for Personality and Ability Testing, Inc.) www.ipat.com


Thank You!
mari@pekonsult.ee
mart.murdvee@pekonsult.ee