

Article

Global X-tream Index and its Partial Parameters for Identifying the Level of Potential Individual Characteristics in the Challenging Conditions of a Modern Corporate and Security Environment

David Ullrich ¹, Jiří Kolečák ², Eva Ambrozová ¹, Vratislav Pokorný ² and František Milichovský ^{3,*}

¹ Faculty of Military Leadership, Brno University of Defense, 662 10 Brno, Czech Republic; david.ullrich@unob.cz (D.U.); eva.ambrozova@unob.cz (E.A.)

² Newton College, 60200 Brno, Czech Republic; jiri.kolenak@newtoncollege.cz (J.K.); vratislav.pokorny@newtoncollege.cz (V.P.)

³ Brno University of Technology, Faculty of Business and Management, 61200 Brno, Czech Republic

* Correspondence: milichovsky@fbm.vutbr.cz; Tel.: +420-541-143-782

Received: 14 May 2019; Accepted: 14 June 2019; Published: 16 June 2019



Abstract: The contribution of this paper focuses on identifying the personality potential and sources of professional managers that are crucial for the effective management of challenging situations. The contribution introduces the current knowledge of connatural management (CNM) as part of cognitive management, which were identified as key multi-parametric dimensions of personal fitness. The individual dimensions represent the indicators of the quality of an individual's condition. The first one is the personality dimension, which provides information about individual integrity, situational settings, ambition, the tendency of an individual toward risk, and readiness to change. Second, the mental–cognitive dimension relates to the individual's potential for critical, creative, and systemic thinking. It conveys information about the ability to accept a change and proactively adapt to its consequences. Lastly, the psycho-physical dimension concerns the interaction of physical and mental processes, states, and phenomena. The main objective of the research was to determine the Global X-tream index, which is applicable for the prompt identification of the qualities of human resources for a specific corporate HR system. The study consisted of 236 respondents, who graduated and successfully completed special courses with applied X-tream methodology. It enables the creation of conditions that enable detecting and evaluating the above-mentioned basic three-dimensional and multi-parametric indicators related to the performance of individuals in a corporate environment. The paper introduces the individual indices, which were used as a basis for the definition of the global X-tream index.

Keywords: cognitive management; cognitive skills; X-tream; subtle skills; development of managers; sustainable company; human capital; emotional intelligence

1. Introduction

The development of a modern corporate and security environment presents, from the point of view of the selection and preparation of people for professional management, a series of questions that concern, among other factors, the ability of people to act in a current turbulent environment characterized by the potential for change [1–3].

The concept of entrepreneurship encompasses more dimensions than a mechanical combination of entrepreneurial knowledge, skills, and attitudes, as it has been defined as one of the lifelong learning

key competencies [4,5]. It turns out that besides models of hard and soft skills development, other paths leading to mastering professional management have yet to be explored and advanced [6,7]. One of these paths is the cultivation of natural potentials, which form the basis of skills for meaningful cognition, correct decision making, and effective action in a modern corporate environment. Therefore, we come up with the connatural management approach (CNM), which is based on cognitive management and X-tream methodology based on a qualitatively different, individually focused complex approach to identifying potential qualities and preparing professional managers for this environment [8–12]. The acquisition of professional skills is a very topical issue, especially nowadays, when specialists are forced to extend their knowledge and improve their professional skills [13,14]. A professional manager should acquire the capabilities and skills in three areas:

- Hard skills: professional and system knowledge and skills necessary for work.
- Soft skills: needed to create, maintain, develop, and manage direct relationships between people.
- Subtle skills (connatural potentials): abilities (individual, covert) based on the natural potential of an individual.

These three areas of skills and competence qualities form the basis of the CNM approach [13–15]. The cognitive management, connatural management approach, and the X-tream methodology are inspired by cognitive and behavioral sciences, neurosciences, philosophy, social sciences, various branches of psychology (e.g., psychology of sport, martial arts, survival, and stress, or extreme situations). They use modern knowledge, technologies, and methods, creating conditions for identifying, developing, and cultivating the qualities of individuals' potential for:

- the cultivation, induction, and maintenance of an optimal state of psychophysical, mental, social, and situational condition;
- the mental mobility for transitions between environments, systems, processes, contexts, and situations;
- the internal stability and integrity of an individual in entering different contexts, positions, relationships, and roles, for taking a correct situation (tactical) and systemic, procedural (strategic) attitude.

Complex, multidisciplinary approaches are one of the ways to deal with the themes and solve the issues related to the selection, preparation, and development of people's ability to act in a modern corporate environment. Since they approach the individual in a comprehensive manner, they are capable of capturing not only his or her natural potential but also respecting his or her specific configuration, which is manifested in the uniqueness of the person.

2. Specification of Management Environment in a Company

Our environment is constantly changing. The nature of working conditions change, and employees are expected to increase their skills and abilities consistently [16]. Recent decades have been characterized by significant changes in the approach to professional education. The main reason for this is the environment in which today's specialists work and continue their education [5,15–17]. There have been changes to the characteristics of human systems that we create in this environment for different purposes and functions. The concept of a corporate environment is used in the context of professional management [18–21]. It enables both a more comprehensive and specific approach to (i) the reflection of professional managers, (ii) their suitability and preparation for the performance and functions in organizational units, and (iii) organizing relationships and processes between these entities in a wider environment (see for instance [22–24]). Professional management involves not only the creation, organization, and management of relationships and processes, i.e. the management of people and human systems, but also the sharing of information and the creation of knowledge for decision making and negotiation, working with networks of links, processes, etc.

We perceive the corporate environment in two basic modes. The first mode is the environment of the organizational unit of the human system (companies, corporations), and the second mode represents the environment that the corporations created by their existence, functions, and activities. The first mode is typical of the environment of each economic entity operating in the corporate environment creating an “inner knowledge” world, cognitive models for decision-making and negotiation, and its own value system. It also creates a specific organization of relationships and forms of application of influence, control, and power. In terms of the second mode, the above-mentioned aspects of the subject’s internal environment, namely values, functions, and ways of knowing and deciding, as well as organizing relationships, necessarily shape the further values, functions, and relationships of the external environment. The survival and prosperity of any subject in a corporate environment depends on the long-term nature of the extent to which its internal environment is vital and consistent with the external environment. The quality of its “being and life” depends on how it uses, learns, develops, and cultivates its potential in the changing conditions and circumstances, including the qualities and values on which it focuses. For people working in this environment, it turns out that in addition to the knowledge, skills, and abilities that can be acquired in the process of education and training, there is an area of natural potential that standard monodisciplinary methods and procedures cannot describe, diagnose, identify, or quantify. Nor can the natural potentials be created or developed through education, and replaced by sophisticated modern communication or information technologies. However, they are related to the following selected capabilities of professional managers [11,25–31]:

- Flexibility between concrete and abstract (such as heuristics problem-solving, decision making, and action in a particular situation versus systemic and procedural decision making and management).
- Flexibility on a cognitive continuum, from mainly analytical to largely intuitive.
- Adequate methods of learning, correct decision making, and effective action taking in dynamically changing conditions that are loaded with uncertainty, randomness, lack or surfeit of information, and high risk.
- Vitality of the individual as a whole, comprising his/her psychophysical and mental condition, personal integrity, and maturity, which are manifested for example as autonomy, stability, situational flexibility, resilience in terms of patience, endurance, and toughness—one aspect of which is e.g., antifragility, or concentration in terms of undisturbed attention and discipline of mind and thought.

From the above-mentioned, a manager for a modern corporate environment should be considered—either within a particular economic entity or within a network environment of global business—as an individual who possesses professionalism as a complex and mature competence for working in a specific situational, occupational, and system environment. Therefore, we consider the connatural management approach useful. The connatural management approach is a principal backbone of cognitive management. It focuses on qualities that are naturally self-contained, in varying degrees and quality, to all people and organizations of human systems, and they are also included in all the contexts in which they may occur. They are close to what is called covert or implicit skills, or meta skills [32–35]. For example, the model of efficiency combines financial results, capital, and tacit knowledge [36–38].

On a long-term basis, we have been interested in the natural potential of people, which forms the background of various abilities, skills, and functions, especially in the context of selecting and preparing people to perform activities and functions in challenging conditions. These natural potentials are multidimensional because they represent multiple dimensions that can be described or understood by individuals using different tools, methods, and procedures. At the same time, they require a comprehensive approach. The reason for this complexity is that the sub-indicators themselves—or parameters such as knowledge level, one-time cognitive performance in tests under standardized conditions or physical exercise in load, or the presence of selected personality traits—have (for different reasons) a low and limited verifiable value for predicting the success of an individual in terms of

managing the situation or correctness of decision making. This is similar to the potential risk of a person's failure, or failure or "collapse" as a whole. It turns out that the validity of the prediction of his/her success is related not only to the level affected by the particular dimensions and their partial parameters, but also to the relationships between these dimensions (parameters) and the structure of their organization, which is reflected in the level of the overall quality of the condition of an individual. We have currently been focusing on three basic dimensions: mental (cognitive), psycho-physical, and personality dimensions.

3. Materials and Methods

The aim of the pilot research is to provide partial indexes for identifying the personal fitness of individuals and the formula for calculating these indices, including the determination of the Global X-tream index, based on statistical data processing.

3.1. Sampling Procedure

The sample population for the research was built by participants who successfully passed an extreme course in the wild, where the X-tream concept was applied. There were 286 participants between 21–34 years old who successfully passed the extreme course. For the purpose of the X-treme methodology, only 238 people were chosen, because one of the criteria for inclusion was finishing a personal evaluation by chosen questionnaires, which was the second part of the whole course. Further processing is based on a complete information database, which consisted of the data obtained at all the stages of the course.

3.2. X-tream Methodology in Human System Selection

The paper used our own developed method, which helped effectively search, identify, and evaluate the potential of each individual. This method is called X-tream because it is applicable to the processes related to the preparation and development of professionals, specialists, and managers to perform functions and tasks in challenging and extreme situations. It enables simulating the conditions of the situations of the cognitive tasks, and subsequently assessing the decision making and behavior of a person in various contexts and dimensions of the situations of the tasks. In the courses conducted according to this methodology, we worked with the concept of professionalism, useful stress, and change, and the following aspects of an individual in the situation and the process: context — situation — position — attitude — conditions — potentials — condition.

Part of the X-tream methodology is a diagnostic survey of course participants, which is carried out in three phases and is focused on identifying individual components of the personal condition. In the first stage, a pre-diagnosis study takes place, in order to determine the basic input data and provide the results of the performance tests in so-called resting phase: i.e., without significant physical or mental load. In further stages, i.e. in the course itself, we monitor the performance indicators relating to the mental and physical condition of an individual. The data obtained primarily serves to identify the individual's potential to cope with and adapt to challenging situations and conditions.

The X-tream methodology is a sophisticated multidisciplinary methodology that incorporates load variability, quantification, the quality testing of the individual's performance level, and the course of changes in his/her physical condition in multiple dimensions and different task situations. In terms of the higher frequency of the indicators and the complexity of the observations, as well as the monitoring of the dynamics of the changes, an n-dimensional environment [25,39] represents and requires special interdisciplinary approaches in terms of data processing and evaluating. As in a traditional two or three-dimensional environment, the problem of identifying relationships between sub-parameters and dimensions is difficult to solve. Thus, it was necessary to develop a methodologically sophisticated unifying environment with multiple dimensions. This has increased the complexity and demands of measuring, collecting, and statistically processing the data.

In the dimension of mental performance and mental fitness, there are competency tests focused on various aspects of intelligence, critical thinking, decision-making under stress, and mental functions such as attention, memory, and concentration, among others. These are monitored in terms of performance under standard conditions and at different stages of the course. For example, there is the D 48 Domino test method. The test reveals the intellectual potential of an individual, records both the intellectual level and its resources, and allows predicting future intellectual performance. The Timing Stress Decision-Making Test (RČS) is a method of monitoring the complex performance of an individual under several types of stress: situation load, performance motivation, the test itself, and time load. The Numeric Rectangle Test (ČO) aims at detecting optical observations, selectivity, and the distribution of attention under conditions requiring a high rate of activity. The Attention Test d2 allows determining individual performance in the area of attention and mental concentration.

In the personality dimension, we focus on the characteristics identified by psychological methods, such as the Golden Profiler of Personality (GPOP), Big Five, or SPARO. The GPOP method [40,41] is based on differences in personality being manifested by different tendencies and preferences. These preferences can be assigned to 10 global scales that are combined into pairs: extraversion (E) and introspection (I), senses (S) and intuition (N), thinking (T) and feeling (F), focus on decision making (J), and focus on perception (P), tension, and relaxation. The Big Five method is a five-factor personality questionnaire that maps the factors of neuroticism, extraversion, readiness to experience, friendliness, and conscientiousness [41]. The method of SPARO helps determine the basal structure and dynamics of self-regulation, integrity, and the mental resistance of the personality [41–44].

In the dimension of physical performance and psycho-physical fitness, we deal in particular with the stability and level of physical performance, including physiological and psychological indicators related to change and strain. It is based on the continuous monitoring of pulse rate changes and their trends, using the Polar Team System and the evaluation of acquired data at different stages of the course, in the environment of model strain situations of different tasks [45–48]. During the course, this data is recorded and evaluated in mental–cognitive stress situations, such as for example, during attention tests, memory tests, or intelligence tests, in various decision and negotiation situations, with the prevalence of some of the modalities of the load (physical, mental, social). We measure for instance the morning pulse rate parameters (as a body response to the load), heart rate in sleep (average value), and changes in heart rate during load and after the load in standardized physical fitness tests. All parts are shown in Figure 1.

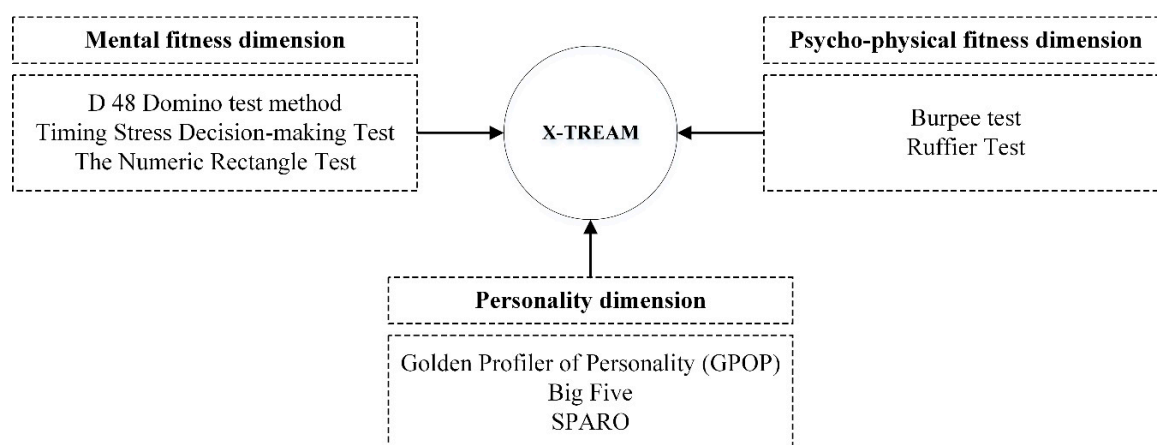


Figure 1. Relationship of individual dimensions in X-tream with potential tests (source: authors).

The X-tream methodology focuses on the individually unique ability of an individual to link the physical, mental, and professional side of a personal approach. However, it is also a “standardized” professional behavior model in terms of external criteria for the level of performance. During the course, when performing individual steps, people apply both partial knowledge and skills (e.g., within

a given discipline) and their units and create “new” solutions to a problem. An integral part of the testing is the verification of self-efficiency (through self-assessment and self-reflection in particular) and the level of mastery, including reflection of the processing of experience into the individually optimal shape of one’s own professional competence [49–52].

3.3. Chosen Statistics Methods

Factor analysis is based on the selection of correlation and partial correlation coefficients. The correlation coefficient represents the closeness of the linear dependence of individual variables and partial correlation coefficients. Partial correlation coefficient shows a similarity of two variables in situations where the other variables are assumed to be constant. If it is possible to explain the dependence of variables using common factors, the partial correlation coefficients are very small: close to zero. To perform factor analysis, it is necessary to have n observations of each k variable ($X_1, X_2, X_3, \dots, X_k$). Correlation coefficients would be high in absolute terms if there are linear dependences between defined variables. On the assumption that the condition of the dependence of common variables is met, partial correlation coefficients of variables ($X_1, X_2, X_3, \dots, X_k$) will be very small. To assess the suitability of factor analysis, two tests can be used [53,54]. Kaiser–Meier–Olkin (KMO) is a coefficient that could reach values between zero and one. Its value is calculated by the rate of squares sum of correlation coefficients and squares sum of correlation and partial coefficients. The acceptable value is 0.50 and higher. The best value is 1.0. The use of Bartlett’s test is for testing the null hypothesis; the correlation matrix of variables is the unit (on a diagonal there are only ones, the others are zeros). If the null hypothesis is rejected, factor analysis could be used for defined variables. The best value of Bartlett’s test is 0.0, but a 5% error is acceptable.

For verification of factor analysis, Cronbach’s alpha indicator must be used. This indicator is seen as a reliability coefficient, which is used as a kind of analog of the correlation coefficient. Usually, it is possible to reach values in the interval $(0; 1)$. Zero is an extreme value that describes the situation in which individual variables are uncorrelated. On the other hand, the value of one describes the correlated variables. When the value is closer to one, a higher degree of conformity is reported [53–55].

4. Results

4.1. Partial Indices and their Characteristics

The usages of factor analysis reveal the reduction of surveyed corporate performance indicators that companies use in their own measurement processes. The main input into factor analysis was a correlation matrix that showed the individual correlation values of the chosen indicators.

There are nine indexes in individual areas, which are the personal characteristics, performance tests, and physical performance. To define the Global X-tream index, three groups were used, as mentioned above (all of these areas include partial indexes).

Groups of personal characteristics were divided into two areas: GPOP and SPARO. SPARO indexes were published in [19]. In the personality dimension, we deal with personality traits determined by the GPOP method. The SPARO questionnaire is used to determine the underlying structure and dynamics of self-regulation, integrity, and mental resilience. The defined indices are incorporated in Table 1.

Performance tests focus on many characteristics of mental performance. These characteristics include intelligence, critical thinking, decision making under stress, and mental functions such as attention, memory, concentration, and others. These characteristics are observed in terms of both quality and quantity under standard conditions and also at various stages of the course (non-standard conditions). For example, the D-48 Domino test reveals the mental potential of any individual in the zone of so-called fluid intelligence, and registers the achieved intellectual level, its sources, and even allows for a prediction of future intellectual performance.

Table 1. Partial Indices of the Personality Dimension.

Group	Factor	
GPOP	I1	$= 0.4847 \times IN + 0.5153 \times P$ IN—Intuition; P—Perceiving
	I2	$= 0.5151 \times T + 0.2760 \times J + 0.2089 \times S$ T—Thinking; J—Judging; S—Sensing
SPARO	I3	$= 0.4935 \times KO + 0.5065 \times RE$ KO—Cognitive variability; RE—Regulatory variability
	I4	$= 0.2941 \times DI + 0.3534 \times OS + 0.3525 \times TN$ DI—Dynamics of the interaction with the environment; OS—General stimulation level; TN—Inclination to risk-taking
	I5	$= 0.5044 \times UR + 0.4956 \times OI$ UR—Effective intellectual capacity, a predominance of the cognitive approach; OI—Effective personal integrity
	I6	$= 0.6433 \times SI + 0.3567 \times PN$ SI—Sensory impression; PN—Motoric disturbance

The practice has shown that aspects measured by sub-tests of so-called crystal intelligence (IST method) were not reliable enough for our experiments. We also used the test of decision making under time stress, which maps the complete performance of any individual under several types of stress: stress induced by a situation, motivation to perform, the test itself, and time stress. Another test we use is numerical rectangle, which measures optical perception, selectiveness, and the distribution of attention under conditions requiring rapid performance. The last standardized method used is the D2 Attention Test, which measures individual performance in the field of attention and mental concentration. Indexes for these performance tests were published in [56]. A summary overview of the partial indices of the mental–cognitive dimension is contained in Table 2.

Table 2. Partial Indices of the Mental–Cognitive Dimension.

Factor	
I7	$= 0.6552 \times RR + 0.3448 \times RD$ RR—Solving of RČS; RD—Solving of D2
I8	$= -0.4947 \times RQ - 0.5053 \times CQ$ RQ—Solving of Q mental potential; CQ—Errors of Q mental potential

Physical performance shows how individuals can regenerate their own power in stressful situations or physical fatigue. It is important to know what heart rate each person has before, during, and after physical exercises. Heart pulse itself couldn't give exact values in comparison to trained and non-trained persons. It is more important is to know what routines they have that enable them to calm down. Therefore, trends were measured during course days to find the final index [57]. This index is defined in Table 3.

Table 3. Partial Indices of the Psycho-Physical Dimension.

Factor	
I9	$= 0.2930 \times T2 + 0.7070 \times T4$ T2—a calm-down trend on the second day; T4—a calm-down trend on the 4th day

4.2. Defining Global X-Tream Index

It is necessary to have indices for defined three groups, which are mentioned above. Therefore, all the individual indices were put into factor analysis calculation. According to the condition of factor analysis, there were gains. Table 4 contains the indicators to verify the eligibility of the factor analysis.

Table 4. Factor Analysis of the Grouped Partial Fields. KMO: Kaiser–Meier–Olkin.

	KMO	Bartlett's test	Cronbach's Alpha
Personal Characteristics (PC)	0.633	0.000 $PC = 0.3593 \times I3 + 0.3191 \times I4 + 0.3226 \times I6$	0.801
Performance Tests (PT)	0.500	0.049 $PT = 0.5 \times I7 - 0.5 \times I8$	0.551
Physical Performance (PhP)	0.609	0.043 $PhP = 0.2930 \times T2 + 0.7070 \times T4$	0.634

Calculating the value of acceptable factors needs the transformation of individual coefficients. These coefficients have become significant to used elements. Their sum total has to be one in absolute. The Global X-tream index was defined by this procedure, which was developed from three defined areas. Observed indices help managers find the appropriate person, who could become part of the corporate team. An evaluation of all the indices revealed basic descriptive statistics, which define the right value borders for the decision-making process of hiring new people or promoting actuals (Table 5). According to Ambrozová, Kolečák, and Pokorný [9], it is important to accept only the factors that reach Global X-tream index over its median value, which is 3.2628. The possible values of the Global X-tream index could be in the interval from 2.44 as the minimum to 4.9 as the maximum. In all the partial indices, individuals could oscillate around the acceptable value of (mean \pm 1 variance). In case of reaching lower values (in partial indices), there are possibilities related to work with these people under process of improving their abilities and skills to identify with and express better values.

Table 5. Descriptive Statistics of the Grouped Partial Fields and Global X-tream Index.

		Mean	Median	Std. deviation	Variance
PC	I1	4.1528	3.7332	1.86224	3.468
	I2	6.7294	6.1915	2.44395	5.973
	I3	5.7239	5.4805	1.47170	2.166
	I4	5.4761	5.2946	1.64195	2.696
	I5	5.9840	6.5000	1.74063	3.030
	I6	6.3087	6.0351	1.37608	1.894
PT	I7	1.7300	2.0000	0.44170	0.195
	I8	−1.1448	−1.0000	0.43888	0.193
PhP	I9	2.1505	2.0000	0.49388	0.244
GI		3.3543	3.2628	0.62887	0.395

On the basis of the calculation of the X-tream index, the mean value of the index was found. This value represents the average factor for each set of recorded data. We can say that these indices reflect low bonds within a factor. This is due to the range of possible answers listed in the questionnaire. Possible values of the X-tream index could be within the interval from one as the minimum to 10 as the maximum.

To modify the indices, it is necessary to use a rating scale for companies that determines whether the tool is used. For the calculation of the total index, it is necessary to put the answers of individual respondents into the appropriate index formula and compare them.

A total of nine indices are currently identified for partial dimensions. The personality dimension contains six indices (I1–I6), the mental–cognitive dimension contains two indices (I7–I8), and the psychophysical dimension contains one index (I9). The individual indices provide the information about the level in the partial dimensions of the personal fitness of the individual, and serve as potential indicators for the focus of the individual regarding personal or professional development. The final index represents the Global X-tream index. The following Table 5 provides the descriptive statistics for individual indices, including the Global Index GI.

The description of the individual indices is primarily focused on expressing the mutual relationships between the individual components that enter into the indices:

- I1. The index of cognitive situational flexibility represents the relationship between the extent to which people use intuition and feeling in the perception of reality, whether they are open to different ways and models of cognition, and how they are oriented toward change, adaptability, spontaneity, regarding contextual, situational, structural, and algorithmic variability.
- I2. The realistic recognition and decision index represents the relationship between the preferred way of perceiving the reality, the preferred method of decision making, and the preferred way of acting.
- I3. The index of situational spontaneity represents the relationship between the level of cognitive variability as a tendency toward a stable environment and a tendency toward a change. It is not only the intellectual potential to detect the changes and the consequences of decision making and behavior, but also the aspects such as proactivity, resistance to impulsivity, self-awareness, and self-control in a wide range and modalities, not only of social interaction activities.
- I4. The risk stimulus index represents the relationship between the level of a tendency to prefer stability in the case of the outer environment contact, and the tendency to prefer higher dynamics. On the one hand, there is the orientation to “the certainty”, and on the other hand, there is the tendency to make a decision with a higher risk of choice.
- I5. The integrity index represents the relationship between the level of resistance of an individual to the emotional effect of different situational contexts manifesting in the ability to use in full and adequately the physical and mental potentials (intellect, experience, and volition) as well as the potentials of the environment in various challenging situations and conditions.
- I6. The stimulation index represents the relationship between the level of preference of dynamic forms of sensory action (a rich content of cognitive and experiential nature and substance) and the tendency to prefer a peaceful and safe way of life, stable conditions, and a familiar environment.
- I7. The solution index expresses the relation between the quality trend and the quantity of the complex mental performance of an individual and the performance trend depending on the selected aspects of attention.
- I8. The index of mental potential represents the relationship between the quality trend and the quantity of performance, the carrier parameter of which is the level of fluid intelligence of an individual, his mental potential, and the ability to use this potential under different load conditions.
- I9. The calm-down index represents the relationship between the trends in changes in the heart rate levels in relation to an individual’s load. This includes the speed and direction after finishing an activity, i.e., the tendency to calm down or recover the body after physical stress.
- GI. The global X-tream index represents the relationship between the following indices: I3 — The index of situational spontaneity, I4 — The index of risk stimulation, I6 — The index of stimulation, I7 — The index of solving, I8 — The index of Q mental potential, and I9 — The calm-down index. The global index represents a complex value and serves for the rough qualitative differentiation of participants, e.g., in the selection processes for certain positions.

The following chart (Figure 2) provides a clear graphical representation of the levels of the above-described indices and their variations.

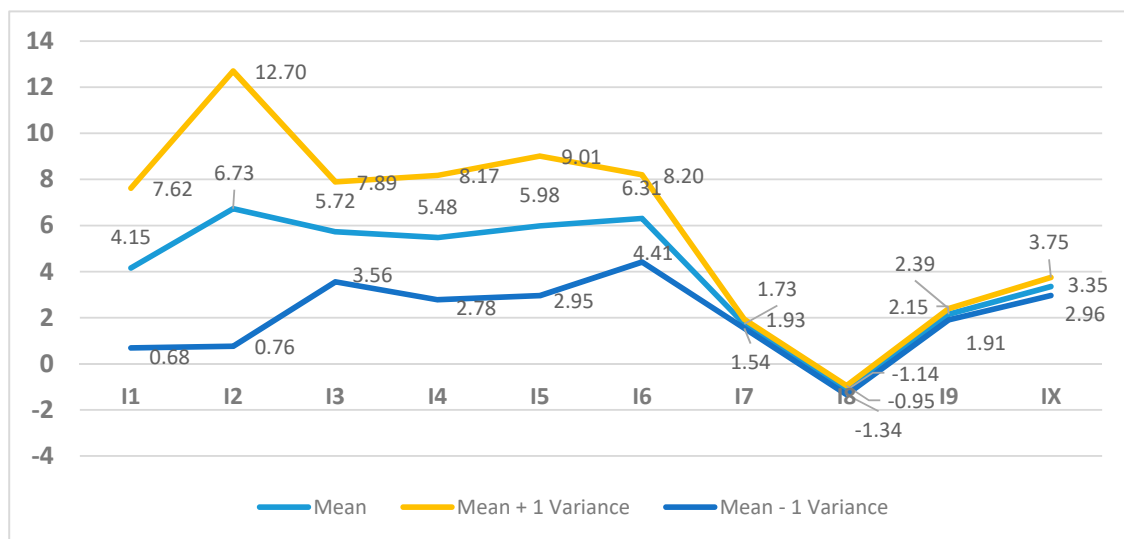


Figure 2. Map of Acceptable Values in Individual Partial Indices (with mean) (source: authors).

5. Discussion

The personality and psychophysical aspects play a significant role in the quantity and quality of performance in solving different situations. These personality parameters and the relationships between them are related to the differences in the conscious and unconscious potentials and preferences of an individual that relate to his/her own way of processing information, decision making, and behavior in relation to the environment and the requirements of the particular situation. As identified indices indicate, it may also be a measure of an individual's tendency to focus on various phenomena and processes, perceive the situation in a comprehensive way, and be able to involve the changes and emerging possibilities in the process of solving. At the same time, it is a measure of the tendency to conclude realistically, think critically, and proceed systematically. The above-mentioned qualities are not in opposition to each other, but they indicate the importance of individual mobility in terms of the situational awareness of the above-mentioned functions in the process of problem solving. For this term, the mobility is on the cognitive continuum, i.e., it includes the ability to think analytically and systematically, and proceed intentionally as well as effectively. It also relates to the ability to operatively and proactively change the process, within the context of the changing conditions and the development of the situation. Alternatively, it can even include inventing non-standard or new solutions or decisions in the process of fulfilling the task both in natural and artificial conditions.

The cognitive variability of an individual and his level of integration and personality stabilization in changing circumstances and environments play a significant role in personality factors. It turns out that in terms of the quantity and quality of performance, the aspects of self-reflection and self-control are significantly involved in a specific group of individuals in order to eliminate the negative consequences of emotional experience in terms of anxiety at the expectation stage (a higher scoring for anticipation). Also, it relates to the ability to not experience emotions intensively, in terms of lowering the influence of excitement at the stage of expectation. A significant quality represents the potential for situational improvisation, i.e., the tendency toward situationally stimulated activities of a more or less improvising or situationally creative, pragmatic character, i.e., the tendencies toward a solvable, realistically oriented approach to the situations and related interactions.

In addition to personality aspects, statistical data processing and factor analysis have also acquired several key parameters for the I7 and I8 partial indices, which are related to the mental dimension. It turns out that the quantity and quality of the mental performance of an individual and its trend, in changing (non-standard) conditions are also determined by the ability to get involved into the solution of a situation and enact prompt and precise penetration into the core of the problem or task. In connection with the above, under conditions of changing load and increasing demands on the

overall level of the psychophysical and mental condition of an individual, the key indicator relates to: (i) the ability to learn in a fluid intelligence process, (ii) understanding principles, relationships, and contexts correctly, or (iii) identifying them on the basis of external indicators. The personality dispositions and the volition aspects that accompany the individual's focus on performance in the form of a trend of error rate are also likely to play an important role. The final index to add is the one that is related to the trend of heart rate changes in relation to physical performance. This trend may not necessarily depend on the degree of physical training of an individual in terms of physical fitness adaptation, and may indicate the potential of the body as a whole to recover from the burden and prepare for the next one.

The global X-tream index (GI) could be considered as a meta-index: a mathematical and statistical meta-abstraction of an abstraction. It is based on the third (dimensional) level of analysis and represents the fourth level of comparison. In its final form, it includes only six partial indices. The factor analysis excluded the indices of I1, I2, and I5, as they did not meet the calculation conditions. This global index has the potential for rough population differentiation. It is useful for the quick identification of the qualities of the individual, and thus is irreplaceable, for example, in the processes of selecting human resources into the company or corporate environment.

The defined X-tream method helps find, test, and evaluate the right applicant, which could be employed by the adequate human resources (HR) department. A good application of the method provides a significant influence on the whole company due to increasing their productivity and turnover, as it is required during implementation of automatization and digitalization in company [58–61]. In the case of a correct applicant, the choice is possible to build adequate staff satisfaction [62,63] and create both formal and informal leadership in the company [63–68].

6. Conclusions

The aim of the pilot research of this paper was to define a global X-treme index, which helps identify the personal qualities of each individual. A total of nine indices are currently identified for partial dimensions. The personality dimension contains six indices (I1–I6), the mental–cognitive dimension contains two indices (I7–I8) and the psycho-physical dimension contains one I9 index. The dimensional indices represent the core of the focus on individual development processes. As part of the individual work on the personality or professional development of an individual, we “descend” to the second level represented by the specific indices and the specific parameter levels, i.e., the saturation within the partial items that form the index. It turns out that the individuals with results in the individual I1–I9 indices in the lower band (Figure 1 — beneath the level indicated by a dark-blue line) are not suitable for the positions, functions, and activities related to the performance in difficult conditions. The individuals with the results in the middle band, which are defined by the light-blue and orange colors, emphasize the terms of the preparation, education, and training. There is the hope that these individuals will become active members of the professional environment. However, the individuals will not significantly contribute both personal and professional aspects. The areas and parameters where they do not reach the expected values can be the subject of the development process, especially for an individual type. The individuals with the results in the upper band (above the red line) are the appropriate ones who are worth investing time and resources into relating to their integration, preparation, education, and training. Their support and individual personality and career development are proven.

The global X-tream index (GI) has the potential for rough population differentiation. It is useful for the quick identification of the qualities of the individual, and thus is irreplaceable, for example, in the processes of selecting human resources into the company or corporate environment.

The X-tream methodology and the individual indices discussed above can serve as tools for identification, as well as the assessment of progress or change of an individual, who want to be hired in a stressful corporate environment. The methodology is created to perform as one strategic tool in a company that is in the process of hiring staff with more personal qualities and prerequisites. Also,

individuals who achieve higher overall values in our indices have tendencies when dealing with situations of changing conditions as follows:

- Approaching each situation with respect and balance under various levels of pressure.
- Approaching each situation as a new challenge, in terms of the capability of an ongoing process of learning (whether in terms of improving one's own method and process or inventing another, new, and more effective solution), despite how familiar, unknown, or new the task.
- Providing critical, systemic, and procedural thinking.
- Preferring the least energy-demanding solutions for themselves and the environment. Offering a higher degree of courage in terms of pragmatically exceeding the limits and horizons of the situations and providing the options of the solution, as well as realistically assessing the risks.
- Providing a personal idea of the resulting quality of their performance.
- Maintaining personal and situational distance, neutrality, and self-control.
- Maintaining the optimal level of personal integrity, and effectively recovering, cultivating, and developing their psychophysical and mental condition.

The connatural management as a multidisciplinary approach, the X-tream methodology as a multidimensional and multi-parametric environment, the global X-tream index, and individual partial indices represent some of the possible approaches for identifying and cultivating the natural potential of the skills and abilities of the professional managers to perform activities and functions in a modern corporate environment [58,59,69]. The modern corporate environment is influenced by a new industrial approach, which is focused on maximal digitalization and automatization: Industry 4.0. The due concept of Industry 4.0 is that it is important to develop the abilities and skills of each employer to reach new requirements and trends regarding staff hiring [70–74].

They allow the identification of the individual's presence and level of natural potential and their effective individual cultivation through personal development as they relate to the levels of psychophysical and mental fitness. These are both approached from the point of view of accepting a change and the proactive adaptation to its consequences and with the potential for critical, creative, and systemic thinking. Last but not least, they measure the ability to change the cognition models for decision-making and behaving in both managerial and personal life situations [75].

Within the Global X-tream index, companies get the tool by which they can hire adequate employees with specific abilities for new industrial areas. Is it important to hire a leader when hoping to create a competitive advantage, which helps the dynamic situation of human resources in a company, and leads to stabilizing the competitive situation in sustainable development [76].

By applying the X-tream methodology, the personality potential can be identified and monitored in different situations and in different forms of stress on the individual. The partial research task, which was carried out within the framework of DZRO-K104 at the University of Defense in Brno, brought the first results of measurements of the fitness dimension indices of students of military leadership. These are six sub-indices that primarily address the potentials for cognitive, decision-making, decision-making, and human and human systems processes, specifically for the security environment.

Author Contributions: All authors contributed equally to this paper.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Révészová, L. Designing modern informatics education for future managers and advanced users according to their knowledge base. *E M Ekon. Manag.* **2016**, *19*, 186–201. [[CrossRef](#)]
2. Anderson, M.H.; Sun, P.Y.T. Reviewing Leadership Styles: Overlaps and the Need for a New 'Full-Range' Theory. *Int. J. Manag. Rev.* **2017**, *19*, 76–96. [[CrossRef](#)]

3. Lovelace, J.B.; Neely, B.H.; Allen, J.B.; Hunter, S.T. Charismatic, ideological, & pragmatic (CIP) model of leadership: A critical review and agenda for future research. *Leadersh. Q.* **2019**, *30*, 96–110. [\[CrossRef\]](#)
4. Organisjana, K.; Koke, T. Does competence-oriented higher education lead to students' competitiveness? *Eng. Econ.* **2012**, *23*, 77–82. [\[CrossRef\]](#)
5. Yawson, R.M. The Theory and Practice of Case-in-Point Teaching of Organizational Leadership. *Am. J. Manag.* **2014**, *14*, 72–81.
6. Senge, P.M. *Pátá Disciplína*; Management Press: Praha, Czech Republic, 2007.
7. Pánková, B.; Lindner, M. Význam kompetenčního rozvoje jako součást terciálního vzdělávání. *Sci. Soc.* **2016**, *12*, 139–147.
8. Ambrozová, E.; Kolečák, J.; Ullrich, D.; Pokorný, V. *Kognitivní Management*; KEY Publishing: Ostrava, Czech Republic, 2016.
9. Ambrozová, E.; Kolečák, J.; Pokorný, V. Connatural management approach to preparation and development of individuals in the business environment. *Bus. Theory Pract.* **2016**, *17*, 81–88. [\[CrossRef\]](#)
10. Dinh, J.E.; Lord, R.G.; Gardner, W.L.; Meuser, J.D.; Liden, R.C.; Hu, J. Leadership theory and research in the new millennium: Current theoretical trends and changing perspectives. *Leadersh. Q.* **2014**, *25*, 36–62. [\[CrossRef\]](#)
11. Judge, T.A.; Piccolo, R.F.; Kosalka, T. The bright and dark sides of leader traits: A review and theoretical extension of the leader trait paradigm. *Leadersh. Q.* **2009**, *20*, 855–875. [\[CrossRef\]](#)
12. Bennis, W. The challenges of leadership in the modern world: Introduction to the special issue. *Am. Psychol.* **2007**, *62*, 2–5. [\[CrossRef\]](#)
13. Čech, P.; Koklarová, B.; Čechová, I. Professional Education in Different Specializations. In Proceedings of the ICERI2015 8th International Conference of Education, Research and Innovation, Seville, Spain, 18–20 November 2015; pp. 6771–6780.
14. Song, J.D.; Ahn, Y.-H. Cognitive Bias in Emissions Trading. *Sustainability* **2019**, *11*, 1365. [\[CrossRef\]](#)
15. Crawford, J.A.; Kelder, J.-A. Do we measure leadership effectively? Articulating and evaluating scale development psychometrics for best practice. *Leadersh. Q.* **2019**, *30*, 133–144. [\[CrossRef\]](#)
16. Üner, M.M.; Bitmiş, M.G.; Alptekin, S. The mediating role of person-organization fit in the supportive leadership-outcome relationships. *E M Ekon. Manag.* **2015**, *18*, 62–72. [\[CrossRef\]](#)
17. Seiler, S.; Pfister, A.C. Why did I do this? Understanding leadership behavior through a dynamic five-factor model of leadership. *J. Leadersh. Stud.* **2009**, *3*, 41–52. [\[CrossRef\]](#)
18. Calof, J. Creating Impactful Intelligence: Communication Lessons from the Corporate Environment. In *Intelligence Communication in the Digital Era: Transforming Security, Defence and Business*; Arcos, R., Pherson, R.H., Eds.; Springer: Berlin/Heidelberg, Germany, 2015; pp. 72–87.
19. Ambrozová, E.; Kolečák, J.; Pokorný, V. The Corporate Environment and the Abilities Required of Professional Managers. In Proceedings of the Innovation Vision 2020: From Regional Development Sustainability to Global Economic Growth, Amsterdam, The Netherlands, 7–8 May 2015; pp. 753–769.
20. Hogan, R.; Kaiser, R.B. What we know about leadership. *Rev. Gen. Psychol.* **2005**, *9*, 169–180. [\[CrossRef\]](#)
21. Mastrangelo, A.; Eddy, E.R.; Lorenzet, S. J The importance of personal and professional leadership. *Leadersh. Org. Dev. J.* **2004**, *25*, 435–451. [\[CrossRef\]](#)
22. Barrick, M.R.; Mount, M.K.; Judge, T.A. Personality and Performance at the Beginning of the New Millennium: What Do We Know and Where Do We Go Next? *Int. J. Sel. Assess.* **2008**, *9*, 9–30. [\[CrossRef\]](#)
23. Dewberry, C.; Juanchich, M.; Narendran, S. Decision-making competence in everyday life: The roles of general cognitive styles, decision-making styles and personality. *Personal. Ind. Diff.* **2013**, *55*, 783–788. [\[CrossRef\]](#)
24. Knap-Stefaniuk, A. Challenges in the Contemporary Education—Importance of Knowledge in the Area of Development Psychology, New Roles of the Teacher and Adult Education. *Vistula Sci. Q.* **2017**, *2*, 197–213.
25. Kostroň, L. *Psychologie Vytváření Úsudků*; Masarykova Univerzita: Brno, Czech Republic, 1998.
26. Hammond, K.R. *Judgments Under Stress*; Oxford University: New York, NY, USA, 2000.
27. Kahneman, D. *Myšlení Rychlé a Pomalé*; Jan Melvil Publishing: Brno, Czech Republic, 2012.
28. Taleb, N.N. *Antifragilita*; Paseka: Praha, Czech Republic, 2014.
29. Goleman, D. *Pozornost: Skrytá Cesta k Dokonalosti*; Jan Melvil: Brno, Czech Republic, 2014.
30. Kabat-Zinn, J. *Uvědomujte si Přítomnost: Meditace Všíímavosti v Každodenním Životě*; Anag: Olomouc, Czech Republic, 2015.

31. Williams, K.M.; Nathanson, C.; Paulhus, D.L. Identifying and profiling scholastic cheaters: Their personality, cognitive ability, and motivation. *J. Exp. Psychol. Appl.* **2010**, *16*, 293–307. [CrossRef]
32. Pánková, B.; Poledňová, I. Importance of Personal Competencies and Their Development as a Part of Higher Education. In Proceedings of the International Conference on ICT Management for Global Competitiveness and Economic Growth in Emerging Economies, Wrocław, Poland, 23–24 October 2016; pp. 299–305.
33. Mindell, A. *Metadovednosti: Spirituální Umění Terapie*; Anag: Olomouc, Czech Republic, 2009.
34. Švec, V. *Od Implicitních Teorií k Implicitním Pedagogickým Znalostem*; Paido: Brno, Czech Republic, 2005.
35. Stuchlíková, I. *Implicitní Znalosti a Intuitivní Pojetí v Pedagogické Praxis*; Paido: Brno, Czech Republic, 2005.
36. Thoene, M.; Buszko, A. Quantive Model of Tacit Knowledge Estimation for Pharmaceutical Industry. *Eng. Econ.* **2014**, *25*, 40–46. [CrossRef]
37. Olaisen, J.; Revang, O. Exploring the performance of tacit knowledge: How to make ordinary people deliver extraordinary results in teams. *Int. J. Inf. Manag.* **2018**, *43*, 295–304. [CrossRef]
38. Chergui, W.; Zidat, S.; Marir, F. An approach to the acquisition of tacit knowledge based on an ontological model. *J. King Saud Univ. Comput. Inf. Sci.* **2018**, 1–11, in press. [CrossRef]
39. Kaku, M. *Hyperprostor*; Argo: Praha, Czech Republic, 2008.
40. Bents, R.; Blank, R. *Typický člověk. Úvod do Typologie Osobnosti*; Hogrefe-Testcentrum: Praha, Czech Republic, 2009.
41. Hřebíčková, M.; Urbánek, T. *Big Five. NEO Pětifaktorový Osobnostní Inventář*; Testcentrum: Praha, Czech Republic, 2001.
42. Mikšík, O. *Zjišťování Bazální Struktury a Dynamiky Autoregulace, Integrovanosti a Psychické Odolnosti Osobnosti Dotazníkem SPARO*; Diaros: Praha, Czech Republic, 1994.
43. Mikšík, O. *Psychika Osobnosti v Období Závažných Životních a Společenských Změn*; Karolinum: Praha, Czech Republic, 2009.
44. Slepíčka, P.; Hošek, V.; Hátlová, B. *Psychologie Sportu*; Karolinum: Praha, Czech Republic, 2009.
45. Schmidt, R.F. *Memorix—Fyziologie*; Scientia Medica: Praha, Czech Republic, 1993.
46. Javorka, K. *Variabilita Frekvencie Srdca*; Osveta: Martin, Slovakia, 2008.
47. Kittnar, O. *Fyziologické Regulace ve Schématech*; Grada Publishing: Praha, Czech Republic, 2000.
48. Placheta, Z.; Siegelová, J.; Štefja, M. *Zátěžová Diagnostika v Ambulantní a Klinické Praxi*; Grada Publishing: Praha, Czech Republic, 1999.
49. Miglierini, B. *D 48 Domino*; Psychodiagnostické a Didaktické Testy: Bratislava, Slovakia, 1989.
50. Komárková, E. *Rozhodování v Časovém Stresu*; Středisko psychologických služeb: Brno, Czech Republic, 1993.
51. Doležal, J.; Kuric, J.; Senka, J. *Číselný Obdělník*; Psychodiagnostika: Brno, Czech Republic, 1980.
52. Brickenkamp, R.; Zillmer, E. *Test Pozornosti d2*; Testcentrum: Praha, Czech Republic, 2000.
53. Škaloudová, A. Faktorová Analýza. 2010. Available online: <http://userweb.pedf.cuni.cz/kpsp/skalouda/fa/> (accessed on 25 January 2019).
54. Řezanková, H. *Analýza Dat z Dotazníkových Šetření*; Professional Publishing: Praha, Czech Republic, 2010.
55. Hrach, K.; Mihola, J. Metodické přístupy ke konstrukci souhrnných ukazatelů. *Statistika* **2006**, *86*, 398–418.
56. Ambrozová, E.; Kolečák, J.; Pokorný, V.; Ullrich, D. Effectiveness of Competent Decision Making of Professional Managers in the Context of the Modern Corporate Environment and its Requirements for the Quality of Their Skills. In *European Entrepreneurship Forum: Efficiency in the Private and the Public Sector*; SMEUnited: Brussels, Belgium, 2015; pp. 6–22.
57. Ullrich, D.; Pokorný, V. Human Factors and Management Limit Situations. In Proceedings of the Education Excellence and Innovation Management through Vision 2020: From Regional Development Sustainability to Global Economic Growth, Vienna, Austria, 3–4 May 2017; pp. 983–988.
58. Lu, Y. Industry 4.0: A survey on technologies, applications and open research issues. *J. Ind. Inf. Integr.* **2017**, *6*, 1–10. [CrossRef]
59. Shamim, S.; Cang, S.; Yu, H.; Li, Y. Management approaches for Industry 4.0: A human resource management perspective. In Proceedings of the IEEE Congress on Evolutionary Computation (CEC), Vancouver, BC, Canada, 24–29 July 2016; pp. 5309–5316. [CrossRef]
60. Hooi, L.W.; Ngui, K.S. Enhancing organizational performance of Malaysian SMEs: The role of HRM and organizational learning capability. *Int. J. Manpow.* **2014**, *35*, 973–995. [CrossRef]
61. Shih, H.; Chiang, Y.; Hsu, C. Can high performance work systems really lead to better performance? *Int. J. Manpow.* **2006**, *27*, 741–776. [CrossRef]

62. Suriyankietkaew, S.; Avery, G.C. Employee satisfaction and sustainable leadership practices in Thai SMEs. *J. Glob. Responsib.* **2014**, *5*, 160–173. [\[CrossRef\]](#)
63. Suriyankietkaew, S.; Avery, G.C. Leadership practices influencing stakeholder satisfaction in Thai SMEs. *Asia Pac. J. Bus. Adm.* **2014**, *6*, 247–261. [\[CrossRef\]](#)
64. Kantabutra, S.; Avery, G. Sustainable leadership: Honeybee practices at a leading Asian industrial conglomerate. *Asia Pac. J. Bus. Adm.* **2013**, *5*, 36–56. [\[CrossRef\]](#)
65. Kantabutra, S. Sustainable leadership in a Thai healthcare services provider. *Int. J. Health Care Q. Assur.* **2011**, *24*, 67–80. [\[CrossRef\]](#) [\[PubMed\]](#)
66. Kantabutra, S.; Avery, G. Shared vision in customer and staff satisfaction: Relationship and their consequences. *Asia Pac. J. Econ. Bus.* **2006**, *4*, 57–66. [\[CrossRef\]](#)
67. Avery, G.; Bergsteiner, H. *Sustainable Leadership: Honeybees and Locusts Approaches*; Routledge: New York, NY, USA, 2011.
68. Suriyankietkaew, S. Effects of sustainable leadership on customer satisfaction: Evidence from Thailand. *Asia Pac. J. Bus. Adm.* **2016**, *8*, 245–259. [\[CrossRef\]](#)
69. Ahmed, Z.; Asim, M.; Pellitteri, J. Emotional intelligence predicts academic achievement in Pakistani management students. *Int. J. Manag. Educ.* **2019**, *17*, 286–293. [\[CrossRef\]](#)
70. Budanov, V.; Aseeva, I.; Zvonova, E. Industry 4.0: Socio-economic junctures. *Econ. Ann. XXI* **2017**, *168*, 33–37. [\[CrossRef\]](#)
71. Fettig, K.; Gačić, T.; Köskal, A.; Kühn, A.; Stuber, F. Impact of industry 4.0 on organizational structures. In Proceedings of the IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC), Stuttgart, Germany, 17–20 June 2018; pp. 1–8. [\[CrossRef\]](#)
72. Dostál, J. Průmysl 4.0 a 5.0—Výzvy pro změnu (nejen) technického vzdělávání. *Časopis Tech. Vzdělávání* **2017**, *6*, 49–54.
73. Tourkolias, C.; Mirasgedis, S. Quantification and monetization of employment benefits associated with renewable energy technologies in Greece. *Renew. Sustain. Energy Rev.* **2011**, *15*, 2876–2886. [\[CrossRef\]](#)
74. Dirgová, E.; Janičková, J.; Klencová, J. New trends in the labor market in the context of shared economy. *TEM J.* **2018**, *7*, 791–797. [\[CrossRef\]](#)
75. Ambrozová, E.; Pokorný, V.; Knap-Stefaniuk, A. Professional Leadership as a Potential and Quality. In Proceedings of the 12th International Scientific Conference: European forum of Entrepreneurship, Montreal, Quebec, 28–31 August 2019; Newton Academy: Praha, Czech Republic, 2019. ISBN 978-80-907435-7-1.
76. Cheng, C.; Cao, L.; Zhong, H.; He, Y.; Qian, J. The Influence of Leader Encouragement of Creativity on Innovation Speed: Findings from SEM and fsQCA. *Sustainability* **2019**, *11*, 2693. [\[CrossRef\]](#)



© 2019 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).