

How to Create Adaptable ROBO-Intelligences?

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Artificial (ROBO-) intelligences are of different Intellectual (Creative ROBO), Temperamental (Character ROBO), and Emotional (Emotional ROBO) types. The engine to implement elements of ROBO-intelligences is proposed to be used Adaptable tools. Creative ROBO-intelligences possess features which characterize highly creative people (NIstructured). Temperamental, creative, and emotional intelligent features which are to be implemented in Character ROBO-intelligences and Emotional ROBO-intelligences are analyzed and developed. Conscience Society will be created in the period of 2019-2035 years. Such society will be characterized by the equality of structured Natural Intelligence (NIstructured) and Artificial Intelligence (AI). Structured Natural Intelligences which demonstration are supported by Adaptable Tools are implemented in different types of Creative ROBO-intelligences, Character ROBO-intelligences, and Emotional ROBO-intelligences.

Keywords: *Temperaments, Emotions, Intelligence, Conscience Society, ROBO-intelligence*

1 Introduction

An attempt to discuss subjects concerning the materialization the notions of information, conscience, conscience society, intelligent systems and its characteristics, its functions and its adaptability with the perspective of intelligent systems creation process is done in [1]. Sustainable and Healthy societies of our days are the societies which successor is Conscience Society. Based on Social Progress Stage development scientists predicted that the Conscience Society will be created in period from 2019 to 2035 years.

Academician Mihai Draganescu in his essay [2] have been underlined that: "... it is not possible for any kind of **Artificial Intelligence** (AI: electronic or in the future nano-electronic) to possess Intuition, Creativity and Spirituality without to resort to other structural natural elements, which reality become more and more plausible. The equality of Artificial Intelligence with Structured Natural Intelligence (NIstructured) will happened, after a set of opinions of researchers such as Moravec, Kurzweil, Buttuzzo, Broderick and a., in the period of 2019-2035 years. Some of researchers believe that in the moment when will be obtained the equality AI = NIstructured

automatically such electronic brain will possesses the phenomenological properties of **Intuition, Creativity and Spirituality...**".

ROBO-Intelligence [3] is an exciting interdisciplinary field including engineering, information technology, machine learning, biological science and psychology. Its dramatic growth in practical applications is driven by both real-world requirements and maturity of related disciplines such as intelligent algorithms. It is expected that perception, understanding and reasoning capabilities play a crucial role in robot-assisted tasks and enable robots to exhibit similar performance on executing various tasks in both constrained and unconstrained environments.

Creativity peoples have to evaluate according the six steps to touch the creativity top [4] using seven creative feature of intelligence ("7i") which schematically form Creativity Kernel Basis [5]. Conscience Society will be supported stronger by ROBO-intelligences which are represented by Artificial Intelligence Information Systems (AIIS).

ROBO-intelligences in Conscience Society will possess Inspiration, Imagery, Imagination, Intuition, Insights, Improvisation, and Incubation intelligent features which characterize highly

creative people [6, 7]. Creativity top of intelligences will be touched by the hierarchical process of Acquiring Knowledge, Developing Curiosity,

Becoming Interested, and successive culminating with Passion, Dedication, and Professionalism as highest levels of activity.

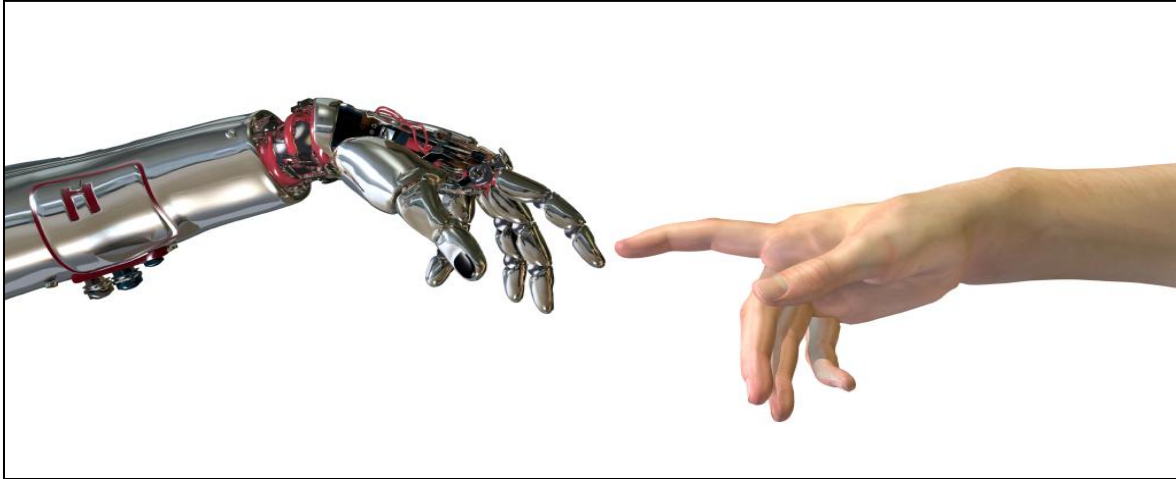


Fig. 1. ROBO-intelligences

Emotional intelligence [8] refers to people's ability to monitor their own and other people's emotional states and to use this information to act wisely in relationships. Researchers are beginning to develop tests that can measure emotional intelligence. Scientists who study emotions generally believe that people with **high emotional intelligence** (Choleric and Sanguine types) usually work well in cooperative situations and are good at motivating and managing others. People with **low emotional intelligence** (Phlegmatic and Melancholic types) often misinterpret emotional signals and have difficulty with relationships.

Although emotional intelligence probably has an inherited component, many researchers believe that people can be guided into making better use of the emotional intelligence that they possess.

How to measure and achieve emotions and temperament characteristics in artificial (ROBO) intelligences? What basic human emotions are to be achieved in ROBO-intelligences? What are special choleric's dominant, extroverted, proud characteristics & functions, and Choleric's Role? What are Sanguine's social, expressive, attention-

seeking characteristics & functions, and Sanguine's role? Phlegmatic type is calm. What are it's submissive, indecisive characteristics & functions, and Phlegmatic's role? What are Melancholic's perfectionistic, introverted, sensitive characteristics & functions, and melancholic type role? What temperament characteristics & functions direct the actions of ROBO-intelligences and have to be first achieved in Conscience Society?

2 Creative ROBO-intelligences

First six features listed in "7i" [4] cannot be met very often in a given population. Only few people exhibit some of them. Only few exceptional personalities exhibit all features. Training methods are few and their results are not guaranteed but is very interesting to investigate them in the perspective to create ROBO-intelligences based on Piirto's Six Steps to the Creativity top (Table 1).

ROBO-intelligences in Conscience Society will possess the first level **Inspiration, Imagery, Imagination, Intuition, Insights, Improvisation, and Incubation** intelligent features which characterize highly creative people [6].

Table 1. Piirto’s 7i features which characterize highly creative people versus Piirto’s Six Steps to the Creativity top

Creativity top versus Creative feature	Acquire Knowledge	Develop Curiosity	Become Interested	Passion	Dedication	Professionalism
Inspiration	Inspiration in Acquiring Knowledge					
Imagery		Imagery in developing Curiosity				
Imagination			Imagination becoming interested			
Intuition				Intuition’s passion		
Insights					Insights dedication	
Improvisation						Improvisation in professionalism
Incubation						

Creativity top of ROBO-intelligences will be touched by the hierarchical intelligent process of **Acquiring Knowledge, Developing Curiosity, Becoming Interested,** and successive culminating with **Passion, Dedication, and Professionalism** as highest level of spiritual activity [7]. Evaluation of first level elements of ROBO-intelligences with the help of Adaptable Tools in direction of creation of its second level elements have to be investigated.

3 Adaptable Tools

Elements of second level of ROBO-intelligences can be achieved on the base of implementation of Adaptable tools [6, 7]. The basis of this process represents the elements from the first level seven intelligent Piirto’s features which characterize highly

creative intelligence and elements from Piirto’s six steps of the creativity top. There are achieved such second level elements of ROBO-intelligences as **Inspiration in acquiring Knowledge, Imagination becoming interested, Improvisation in professionalism** and so on (Table nr.1)

Adaptable tools for intelligent information systems (System Kernel of ROBO-intelligences) are represented by the set of adaptors of different types. Each adaptor activates in the process of ROBO-intelligences creation. It activates in the environment of adaptable software and hardware which process old elements of data and actions by definition and use of the new created by them of ROBO-intelligence’s elements. Adapter’s general scheme:

<p>Adaptable software Adaptable data Element definition</p>	<p>AD APT ER</p>	<p>Adaptable hardware Adaptable actions Element call</p>
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The **Adapter**, as a meta-system tool, supports adaptable software and hardware flexibility: extension and reduction of ROBO-intelligences possibilities. By the help of Adapter it can be presented **Pragmatics, Syntax, Semantics, Environment,** and **Examples** of new or modified elements of

ROBO-intelligences. In continuation it is presented adapter’s general scheme (1) and example (2) of it implementation in the process of definition the second level element “**Intuition’s passion**” of ROBO-intelligences:

	<u>BL</u> <element's pragmatics>		<u>BL</u> < Intuition's passion pragmatics>
	<u>SY</u> <element's syntax>		<u>SY</u> < Intuition's passion syntax>
(1)	<u>SE</u> <element's semantics>	(2)	<u>SE</u> < Intuition's passion semantics>
	<u>CO</u> <element's usage context>		<u>CO</u> < Intuition's passion usage context>
	<u>EX</u> <element's examples call>		<u>EX</u> < Intuition's passion examples call>
	<u>EL</u>		<u>EL</u>

Using Adapter (1) it can be defined, for example, one of the new second level element “**Intuition's passion**” (2), where:

- 1) its **pragmatics** is presented by the name of the second level element “**Intuition's passion**”;
- 2) **Syntax** of this new ROBO-intelligence element is presented by “**Intuition of passion**”;
- 3) **Semantics** of this new ROBO-intelligence element is defined on the base of semantics of both first level elements “**Intuition**” and “**Passion**”;
- 4) **Usage context** (supplement to pragmatics) of this new element is presented by next information: This new element represents evaluation process of ROBO-intelligence from its situation “**Intuition to become interested**” to its next (upper) situation “**Intuition professionalism**”;
- 5) One of **example calls** for this element “**Intuition passion**” is presented by: “ROBO-intelligence intuition became passionate by it business, it begin think to social profit”.

This new element “**Intuition's passion**” of 2nd level enrich the possibilities of ROBO-intelligence of Conscience Society.

Adaptable tools are to be used in the process of creation of different types of ROBO-intelligences of Conscience Society.

The Kernel of each of ROBO-intelligences mostly is represented by its own special Computer Based Intelligent Information Systems (CBIIS). It is possible to demonstrate that special CBIIS for ROBO-intelligence can be created on the base of Adaptable programming tools technologies presented by [6, 7]. For example: Creation process for Creative ROBO-intelligence can be demonstrated by proving next Theorem:

Theorem “Creative feature ROBO-intelligence”: If there are done (1) the 1st level of Creative **ROBO-intelligence's Piirto's 7i features** which characterize **highly creative people**, (2) the 1st level of **Creative ROBO-intelligence's Piirto's six steps of the creativity top**, and (3) **Adaptable tools** it is possible to create all 2nd level elements of **Creative ROBO-intelligence** based on these its 1st and, eventually, 2nd level elements.

The Creative ROBO-intelligence is composed from Inspiration in acquiring Knowledge, Imagery developing Curiosity, Imagination becoming interested, Intuition's passion, Insights dedication, Improvisation in professionalism, and so on 2nd level elements of intelligences. These second level elements of Creative ROBO-intelligence are created based on the first level of Piirto's 7i features which characterize highly creative people (**Inspiration, Imagery, Imagination, Intuition, Insights, Improvisation, and Incubation**) and the Piirto's six steps of the creativity top (**Acquiring Knowledge, Developing Curiosity, Becoming Interested, Passion, Dedication, and Professionalism**); this process is supported by Adaptable Tools.

The real-life robotics industry has struggled with the problem: how to engineer a control system that enables a robot to perform complex and significant operations independently, such as finding victims, locating dangerous materials, mapping the best routes in and out of a disaster site or uncovering hidden explosives. **The adaptive robotics** project at Idaho National Laboratory [9] overcome substantial obstacles to such a control system with its award-winning Robot Intelligence Kernel (RIK). To our opinion The Adaptable Tools

can serve a good help in achieving real-life ROBO-intelligences.

4 Creativity top versus features which characterize highly creative intelligences.

Second level of ROBO- intelligences can be achieved on the base when the first level six steps to the creativity top elements are

succeeded by the first level seven intelligent features which characterize highly creative, in such a way obtaining the second level of ROBO-intelligence. There are achieved such second level characteristics of ROBO-intelligences as **Professional improvisation, Acquire Knowledge in Inspiration, Passion intuition,** and so on (Table 2).

Table 2. Piirto’s Six Steps to the Creativity top versus Piirto’s 7i features which characterize highly creative people

Creative feature versus Creativity top	Inspiration	Imagery	Imagination	Intuition	Insights	Improvisation	Incubation
Acquire Knowledge	Acquire Knowledge in Inspiration						Acquire Knowledge in Incubation
Develop Curiosity		Develop Curiosity in imagery					
Become Interested			Become Interested imagination				
Passion				Passion intuition			
Dedication					Dedication insights		
Professionalism						Professional improvisation	

Creation process for the 2nd level elements of Creative ROBO-intelligence can be demonstrated by proving next Theorem:

Theorem “Creative top ROBO-intelligence”: If there are done (1) the 1st level of Creative ROBO-intelligence’s Piirto’s six steps of the creativity top, (2) the 1st level of Creative ROBO-intelligence’s Piirto’s 7i features which characterize highly creative people, and (3) Adaptable tools it is possible to create all 2nd level elements of Creative top ROBO-intelligence based on its 1st level, and, eventually, 2nd level elements of Creative ROBO-intelligence.

5 Temperamental ROBO-intelligences

There exist four temperaments [8] that a relatively simple but powerful way of classifying personalities: Choleric, Sanguine, Melancholic, and Phlegmatic.

The Choleric functionally is an extroverted, hot-tempered, quick thinking, active, practical, strong-willed and easily annoyed person. Choleric are self-confident, self-sufficient and very independent minded. They are decisive and opinionated and find it easy to make decisions for themselves as well as others. Choleric tend to leave little room for negotiating.

The Sanguine type functionally is an extroverted, fun-loving, activity-prone, impulsive, entertaining, persuasive, easily amused and optimistic person. Sanguines are receptive and open to others and build relationships quickly. They are animated, excited and accepting of others. They will smile and talk easily and often. It is not unusual to feel as if you have known the Sanguine person for years after only a few minutes. Sanguine are so people-oriented that they easily forget about time and are often late arriving at their.

The Phlegmatic type functionally is an introverted, calm, unemotional, easygoing, never-get-upset, person. Phlegmatic are both slow and indirect when responding to others. They are also slow to warm-up but will be accommodating in the process. Phlegmatic are by far the easiest person with which to get along. They live a quiet, routine, life, free of the normal anxieties and stresses of the other temperaments. The Phlegmatic will

avoid getting too involved with people and life in general.

The Melancholic type functionally is an introverted, logical, analytical, factual, private, lets-do-it-right person. Melancholies respond to others in a slow, cautious and indirect manner.

Melancholies are reserved and suspicious until sure of your intentions. The Melancholy probe for the "hidden meaning" behind your words. They are timid and may appear unsure and have a serious expression. They are self-sacrificing, gifted and they tend to.

Second level of Character ROBO-intelligences can be achieved on the base of 1st level functions of four types of characters succeeded by the 1st level **seven intelligent features** which characterize **highly creative intelligences**. There are achieved such 2nd level elements of ROBO-intelligences as **Sanguine’s Intuition, Melancholic’s Inspiration** and so on (Table 3).

Table 3. Character ROBO-intelligences with seven features which characterize highly creative intelligence

Creative feature versus Personality	Inspiration	Image ry	Imaginati on	Intuition	Insights	Improvisati on	Incubation
Choleric			Choleric’s Imaginati on				
Sanguine				Sanguine’s Intuition			
Phlegmatic							Phlegmatic’s Incubation
Melancholic	Melancholi c’s Inspiration						

Temperamental ROBO-intelligences are presented by Choleric ROBO-intelligence, Sanguine ROBO-intelligence, Phlegmatic ROBO-intelligence, and Melancholic ROBO-intelligence.

It is possible to demonstrate that special CBIIS for ROBO-intelligence can be created using adaptable technologies presented by [5, 6]. For example: Creation process for

Sanguine ROBO-intelligence can be demonstrated by proving next Theorem.

Theorem “Sanguine ROBO-intelligence”: If there are done (1) the 1st level main features, characteristics, and functions of **Sanguine type** of temperaments, (2) the 1st level Piirto’s 7i features which characterize **highly creative people**, and (3) **Adaptable Tools** it is possible to create **Sanguine ROBO-intelligence** with such features of

Creative Artificial Intelligence. The Sanguine ROBO-intelligence is composed from the 2nd level elements of temperamental ROBO-intelligences: Sanguine’s inspiration, Sanguine’s imagery, Sanguine’s imagination, Sanguine’s intuition, Sanguine’s insights, Sanguine’s improvisation, and Sanguine’s incubation; each of them is represented by its CBIIS. These 2nd level elements of Sanguine ROBO-intelligence are created using Adaptable tools with 1st level of Sanguine elements (Sanguine’s features, characteristics and functions) and the 1st level Piirto’s features which characterize highly creative people:

inspiration, imagery, imagination, intuition, insights, improvisation, and incubation.

6 Features Which Characterize Highly Creative Character ROBO-intelligences

Second level of ROBO- intelligences can be achieved on the base of first level seven intelligent features which characterize highly creative intelligences succeeded by the main features, characteristics, and functions of four types of characters. There are achieved such 2nd level of characteristics of ROBO-intelligences as Inspiration of Choleric, Imagery of Phlegmatic and so on (Table 4).

Table 4. Seven features which characterize highly creative Character ROBO-intelligences

Personalities versus Creative feature	Choleric	Sanguine	Phlegmatic	Melancholic
Inspiration	Inspiration of Choleric			Inspiration of Melancholic
Imagery			Imagery of Phlegmatic	
Imagination		Imagination of Sanguine		
Intuition	Intuition of Choleric			
Insights		Insights of Sanguine		
Improvisation			Improvisation Phlegmatic	
Incubation				Incubation of Melancholic

Creation process for Character ROBO-intelligence can be demonstrated by proving next Theorem:

Theorem “Feature of Character ROBO-intelligence”: If there are done (1) the 1st level of **Character ROBO-intelligence’s feature** which characterize **highly creative intelligence**, (2) the 1st level of **Character ROBO-intelligence’s** main features, characteristics, and functions of **any type** of temperaments, and (3) **Adaptable tools** it is possible to create 2nd level element of **Character ROBO-intelligence**.

Demonstration of such types Theorems is based [6] on the set of Lemmas, with the help of which it can be obtained all 2nd level elements of Character ROBO-intelligences, for example, the 2nd level element **“Insights of Sanguine”** of Sanguine ROBO-intelligence.

7 Evolution Steps of Character ROBO-intelligences

Second level of **Character ROBO-intelligences** can be achieved on the base of four types of characters and six steps to the creativity top (Table 5).

Table 5. Character ROBO-intelligences versus Six Steps to the Creativity top

Creativity top versus Personalities	Acquire Know-ledge	Develop Curiosity	Become Interested	Passion	Dedication	Professionalism
Choleric		Choleric develop Curiosity				
Sanguine	Sanguine acquires Knowledge				Sanguine dedication	
Phlegmatic			Phlegmatic become Interested			
Melancholic						Melancholic professionalism

Based on Adaptable Tools it can be achieved such second level elements of Character ROBO-intelligences as Sanguine acquires Knowledge, Phlegmatic become Interested and so on (Table 5). For example, creation process for Choleric ROBO-intelligence can be demonstrated by proving next Theorem:

Theorem “Choleric ROBO-intelligence”: If there are done (1) the 1st level elements - main features, characteristics, and functions of **Choleric type** of temperaments, (2) the 1st level **Six Steps to the Creativity top elements** of Character ROBO-intelligence, and (3) **Adaptable Tools** it is possible to create **Choleric ROBO-intelligence**.

Demonstration of Theorem “**Choleric ROBO-intelligence**” is based on such Lemmas as “Choleric acquires Knowledge”, “Choleric develop Curiosity” and so on, which demonstrate the process of adaptable creation of 2nd level elements of Character ROBO-intelligences.

8 Creativity Top for Temperament Types of ROBO-intelligences

Second level of Character ROBO-intelligences can be achieved on the base of six steps to the creativity top succeeded by the four types of characters (Table 6).

Table 6. Six steps to the creativity top for Character ROBO –intelligences

Characters versus Creative top	Choleric	Sanguine	Phlegmatic	Melancholic
Acquire Knowledge			Acquire Knowledge by Phlegmatic	
Develop Curiosity	Develop Curiosity for Choleric			
Become Interested		Become interested for Sanguine		
Passion				
Dedication				
Professionalism				Professionalism of Melancholic

It is possible to demonstrate that special CBIIS for Character ROBO-intelligence can be created on the base of Adaptable tools presented by [1, 6]. For example: Creation process for the 2nd level element “Become

interested for Sanguine” of Character ROBO-intelligence can be demonstrated by proving next Lemma.

Lemma “Become interested for Sanguine ROBO-intelligence”: If there are done(1)

the main features, characteristics, and functions of Sanguine type of temperaments, (2) the 1st level element “Become interested” of Character ROBO-intelligence, and (3) Adaptable Tools it is possible to create the 2nd level element “Become interested for Sanguine” of Character ROBO-intelligence. Analogic Lemmas can be developed and demonstrated for the processes of creation of such 2nd level elements of Character ROBO-intelligences as: “Develop Curiosity for Choleric”, “Acquire Knowledge by Phlegmatic”, “Professionalism of Melancholic” and so on.

9 Emotional Intelligence

Creative (**IQ – head activity**) and emotional (**EQ – heart feeling**) intelligences have an important role to be implemented not only for a professional businessman, but especially for ROBO-intelligences in Conscience Society.

In psychology, philosophy, and their many subsets [10], **emotion** is the generic term for subjective, conscious experience that is characterized primarily by psychophysiological expressions, biological reactions, and mental states. Emotion is often associated and considered reciprocally influential with mood, temperament, personality, disposition, and motivation,[citation needed] as well as influenced by hormones and neurotransmitters such as dopamine, noradrenaline, serotonin, oxytocin and cortisol. Emotion is often the driving force behind motivation, positive or negative.

The physiology of **emotion** is closely linked to arousal of the nervous system with various states and strengths of arousal relating, apparently, to particular emotions. Although those acting primarily on emotion may seem as if they are not thinking, cognition is an important aspect of emotion, particularly the interpretation of events. For example, the experience of fear usually occurs in response to a threat. The cognition of danger and subsequent arousal of the nervous system (e.g. rapid heartbeat and breathing, sweating, muscle tension) is an integral component to

the subsequent interpretation and labeling of that arousal as an emotional state. **Emotion** is also linked to behavioral tendency [11]. Research on emotion has increased significantly over the past two decades with many fields contributing including psychology, neuroscience, medicine, sociology, and even computer science. The numerous theories that attempt to explain the origin, neurobiology, experience, and function of emotions have only fostered more intense research on this topic.

Every person: child, adult, businessmen, doctor, teachers and other takes his life, his ideas and lives in such a way as to be fine and comfortable. Therefore we are all different and unique in our own way but it is something that binds us all - emotions. Many psychologists believe that there are six main types of emotions, also called basic emotions. They are happiness, anger, fear, sadness, disgust, and surprise. Happiness is our reaction to the positive, as disgust is to the revolting and surprise is to the unexpected. Similarly, we react to aversion through anger, to danger through fear, and to difficulty in sadness.

Scientists who study emotions generally believe that people with **high emotional intelligence** usually work well in cooperative situations and are good at motivating and managing others. People **with low emotional intelligence** often misinterpret emotional signals and have difficulty with relationships. Although emotional intelligence probably has an inherited component, many psychologists believe that people can be guided into making better use of the emotional intelligence that they possess.

Emotional intelligence refers to natural and artificial (ROBO-) intelligence's ability to monitor their own and other intelligence's emotional states and to use this information to act wisely in relationships.

10 Emotional ROBO-intelligences

Researchers are beginning to develop tests that can measure **emotional intelligence**. Scientists who study emotions generally

believe that people with high emotional intelligence (choleric and sanguine types) usually work well in cooperative situations and are good at motivating and managing others. People with low emotional intelligence (phlegmatic and melancholic types) often misinterpret emotional signals and have difficulty with relationships. Although emotional intelligence probably has an inherited component, many psychologists believe that people can be

guided into making better use of the emotional intelligence that they possess. **Second level of Emotional Character ROBO-intelligences** can be achieved on the base of four types of characters which are succeeded by the six main types of emotions (Table 7). There are achieved such second level elements of Emotional Character ROBO-intelligences as Choleric's Happiness, Phlegmatic's Disgust and so on (Table 7).

Table 7. Character ROBO-intelligences with emotions

Characters combination with Emotions	Happiness	Fear	Surprise	Disgust	Sadness	Anger
Choleric	Choleric's Happiness					
Sanguine			Sanguine's Surprise			
Phlegmatic				Phlegmatic's Disgust		
Melancholic						Melancholic's Anger

The Kernel Software of each Emotional Character ROBO-intelligences is represented by its own special Computer Based Intelligent Information Systems (CBIIS). It is possible to demonstrate that special CBIIS for Emotional Character ROBO-intelligence can be created on the base of Adaptable tools presented by [6, 7]. For example: Creation process for Emotional Phlegmatic ROBO-intelligence can be demonstrated by proving next Theorem:

Theorem "Emotional Phlegmatic ROBO-intelligence": If there are done (1) the main features, characteristics, and functions of **Phlegmatic type** of temperaments, (2) the **Six Types of emotional characteristics** – 1st level elements of Character ROBO-intelligence, and (3) **Adaptable Tools** it is possible to create **Emotional Phlegmatic ROBO-intelligence**.

The Emotional Character ROBO-intelligences are composed from 2nd level elements of Character ROBO-intelligences

such as: Choleric's Happiness, Sanguine's Surprise, Phlegmatic's Disgust, Melancholic's Anger, and so on. These 2nd level elements of Emotional Character ROBO-intelligence are created using Adaptable tools with 1st level four types of characters (Choleric, Sanguine, Phlegmatic, and Melancholic) and 1st level elements - the six main types of emotions (Anger, Happiness, Fear, Surprise, Disgust, and Sadness) using corresponding Lemmas for their creation.

11 Emotions for Character ROBO-intelligences

Second level elements of Emotional ROBO-intelligences can be achieved on the base of six main types of emotions and four types of characters. There are achieved such second level of elements of ROBO-intelligences as Happiness of Choleric, Anger of Melancholic and so on (Table 8).

Table 8. Emotional ROBO-intelligences with characters

Emotions of Personalities	Choleric	Sanguine	Phlegmatic	Melancholic
Happiness	Happiness of Choleric			
Fear				
Surprise		Surprise of Sanguine		
Disgust			Disgust of Phlegmatic	
Sadness				
Anger				Anger of Melancholic

It is possible to demonstrate that special CBIIS for the 2nd level elements of Emotional ROBO-intelligence can be created on the base of Adaptable tools presented by [6, 7]. For example: Creation process for the 2nd level element “Disgust of Phlegmatic” of Emotional Phlegmatic ROBO-intelligence can be demonstrated by proving next Lemma:

Lemma “Disgust of Phlegmatic ROBO-intelligence”: If there are done (1) the main features, characteristics, and functions of **Phlegmatic type** of temperaments, (2) the 1st level **emotion** element “Disgust” of Character ROBO-intelligence, and (3) **Adaptable Tools** it is possible to create the 2nd level element “Disgust of **Phlegmatic ROBO-intelligence**”.

12 Emotion’s Evolution

Researchers are beginning to develop tests that can measure emotional intelligence.

Emotional ROBO-intelligence’s evaluation **steps** are represented by:

- 1) **Self-awareness:** recognizing internal feelings;
- 2) **Managing emotions:** finding ways to handle emotions that are appropriate to the situation;
- 3) **Motivation:** using self-control to channel emotions toward a goal;
- 4) **Empathy:** understanding the emotional perspective of other people;
- 5) **Handling relationships:** using personal information and information about others to handle social relationships and to develop interpersonal skills.

Second level of ROBO - intelligences can be achieved on the base of six main types of emotions are succeeded by five emotion intelligence evaluation steps. There are achieved such second level of characteristics of ROBO-intelligences as Happiness self - awareness, Disgust motivation and so on (Table 9).

Table 9. Emotional ROBO-intelligence evolution

Evolution of Emotions	Self-awareness	Managing emotions	Motivation	Empathy	Handling relationships
Happiness	Happiness self-awareness				
Fear					Fear handling relationships
Surprise		Surprise managing			
Disgust			Disgust motivation		
Sadness					
Anger				Anger empathy	

13 Conclusion

Human beings subconsciously **adapt** their behaviors to a communication partner in order to make interactions run smoothly. In **human-robot** interactions, not only the human but also the robot is expected to adapt to its partner in Conscience Society. Thus, to facilitate robot interactions, a robot should be able to read subconscious comfort and discomfort signals from other robots and adjust its behavior accordingly, just like a human would. However, most previous research works expected the human to consciously give feedback, which might interfere with the aim of interaction.

Creating a Creative ROBO-intelligences, Emotional ROBO-intelligences, and Character ROBO-intelligences we can make a robot that acts exactly like people do, by knowing everything about their temperament type, human creativity features and emotions and how they perceive creativities, temperaments and emotions in their real lives and how ROBO-intelligences go from one state to another.

In present project there are examined KnowledgeWare of first level of intelligences, emotions, and temperaments.

Creative ROBO-intelligences to our opinion are mostly based on Piirto's six steps to touch the creativity top using seven creative feature of intelligence.

There are analyzed the human emotions, why do we have emotions, what is emotion intelligence and what are the most important human emotions with the goal to underline their places in development of the second level characteristics of Emotional ROBO-intelligences.

It was investigated correlations between personality's (Choleric, Sanguine, Phlegmatic, and Melancholic) types and main emotions (Happiness, Fear, Surprise, Disgust, Sadness and Anger). It is observed that all emotional manifestations depend on the temperament and its measure can help to create Character ROBO-intelligences.

It was investigated the possibility to use Adaptable tools in the process of creation SoftWare, BrainWare and KnowledgeWare

for Creative ROBO-intelligences, Emotional ROBO-intelligences, and Character ROBO-intelligences.

Adaptable tools can be the engine for creating robotic intelligences for Conscience Society.

We are strong convinced that in the period of creation of Conscience Society (from 2019 to 2035), as are convinced and majority researchers in the Artificial Intelligence domain, the equality of Artificial intelligence with structured Natural intelligence (AI = NIstructured) will be achieved.

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Project "Conscience Society Creation" is developed at The Academy of Economic Studies of Moldova. Previous results of the research team concerning creation of intelligent information systems are presented in [1, 6]. Present research results are based on characteristics of emotions in composition with creativity to create emotional ROBO-intelligences using Adaptable Tools. Research in the branch "Creation Conscience Society" by AESM teams of young researchers has been began in 2008 year. The 1st international TELECONFERENCE took place in 2012 year [7] in community with the researchers from Academy of Economic Studies of Moldova (AESM), "Al. I. Cuza" University at Iasi (UAIC, Romania), Academy of Economic Studies (AES) of Bucharest, and Illinois State University (ISU, Chicago, USA); the main results were obtained in the branch of Creative ROBO-intelligences creation.

By April 13-14, 2013 it took place the 2nd international TELECONFERENCE of young researchers "Creation Conscience Society" from AESM (Chisinev), UAIC (Iasi), AES (Bucharest), University „Vasile Alecsandri" at Bacau (UB, Romania), Academy "Gh. Dima" at Cluj-Napoca (Romania), and Illinois State University (ISU, Chicago, USA).

The best young researchers Nicolae ILI, Irina MIHALACHI, Marina ZAMA, Vera SAINSUS, Elena BORZIN, Irina CHIPERI, Alina NASTAS, Ana-Maria TIMOFTI, and

other 15 their colleagues from AESM spend one year of research in the Character ROBO-intelligences and Emotion ROBO-intelligences creation process. Their investigations help to evaluate the branch of Creation Conscience Society.

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