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SYSTEMS AND PROCESSES OF COGNITION, WORK RATIONALIZATION, INNOVATING, ENTREPRENEUR AND ERGONOMICS

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ABSTRACT
Systems and processes of cognition, or rather, the thinking and creation of new values and ideas, represents the beginning in a chain of new values creating, starting from ideas to the invent itself and the application of selected ideas in different modes of new values. Simultaneously, they are a necessary condition and a quality background for a use in Work Rationalization, , one of main parts in Work Study, in systems and processes of innovating and entrepreneur, as well as in multidisciplinary area and science called Ergonomics.
Keywords: work rationalization, innovation, ergonomics

1. INTRODUCTION
The systems and processes of cognition, or rather of thinking and creating, ensures transfer of the creating and selected ideas in a chain of new application modes. Created and selected ideas temporary represent the starting and the necessary condition/request for the use in Work Rationalization subarea, one of main parts in Work Study area, in systems and processes of innovating and entrepreneur, as well as in a multidisciplinary area and science called Ergonomics.
Innovation is a social and economic notion and represents researching the transfer process of materia or phenomena in resource or source of the new value. Entrepreneur, the most frequently, does not bring on the change, but he uses previously mentioned ones as tools in searching of opportunity for job realizing, widely known under the name entrepreneur.

2. SYSTEMS AND PROCESSES OF COGNITION
The chain of creating new values, starting from an idea to the invents and its application forms, usually contains the same elements and sequence in aforementioned chain:
idea- the invent- patent- licence – cession- product- know how.
Idea is the beginning in the chain and result of the thesis by systems and processes of thinking and creating ideas and it is, beside the invent, solely permanent chain element, while the other elements, application modes of idea and the invent, are temporary (it can be and do not have to in the chain).
Two known basic **divisions on thinking** for problems solving are: 1) focus on specific contents**,** which embraces convergent and divergent thinking: 2) in psychology, which embraces vertical and lateral thinking**.** In both of previous divisions, and universaly, idea of the creativity can be divided in two levels of creativity: a) social creativity, which depends on micro- and macro-factors; b) single creativity, [1].
The most important and the most frequent of **creativity principles** are: (1) creative freedom, expressed in the thesis "Bringing forth of ideas pulls society in advance, and deficiency of ideas pulls them back"; (2) excluding of habit far too fast and too early, along with the ideas estimating and emotional discriminating; (3) inclusion in the acting and contemplating things and concepts which, as it seems, at first, doesn`t have to have any connection with solving the problem; to think creative

means to connect those that, at first, seeemed without connection; (4) need for one more testing of the exact and absolute ideas and laws, with an attempt to "upgrade" them, [1, 2].
Methods, techniques and skills of creative thinking stimulating are very important, and the most known ones are:
1) **common techniques**: Brainstorming; some modified methods, for example, reverse Brainstorming; 2) **individual techniques**: Solo storm; technique of free association; technique of the same kind of relationships; technique of making Check lists; 3) combinations of methods; 4) the technique of Brainwriting.

3. WORK RATIONALIZATION

Some of the basic notions and belonging characteristics of the work rationalization would be: name and definition (differences according to the name projecting, different authors with different definitions), researched states and link with the complementary state of the researched (the existing state of the product, of the system and of the processes, unlike the new state of the previously represented entitets), objects and subjects, along with the area of the research application (basic subject is a man-operator, while the most important subject are the space, the equipment, the goods, the environment and the work conditions, along with the work methods), levels of the research (mezo- or the middle level of the system and of the process, along with the micro- or the lowest level of the objects and subjects in the systems and processes of the mezo-level, or rather at the work places and operations) and the necessity of the linking of the previously mentioned notions into a one whole system and the process of rationalization of work and of production.
The important notions of work rationalization are also the following: principles, kinds and forms (cooperation, work division or specialization with the forms of standardization, typization and simplification, followed by the mechanization, automatization and automation, along with centralization and decentralization), along with the theoretical and practical rules, directives and conditions, along with the principles and laws of application **at the mezo-level of the system and of the process** (criterias and measures of the resolution rationality level grade: optimum principle, rationality coefficient, work intensity, entire rationalization successfulness, along with the work diagram; general practical rules and special rules for individual concepts, approaches, systems and processes of that technology), and **at the micro-level of the subsystem and of the work place subspace, of operation and of the performers** (influencing factors on the size of the worker`s tiredness; basic laws for movement rationalization; Barnes` rationalization principles or movement economics, a subsystem and subprocess influencing factors: the work place size, work chair, support for feet and pedals, physical exertion and forces at the work objects handling, dynamic work of operator`s entire body, individual muscle work, static muscle work, work conditions).
Most important approaches, systems and technologies would be: movement study, therblig system application, photo equipment application, noting the body movements by different notation system application; combination of watching, measuring and both verbal and written communication by following, gathering and signing in the established descriptive, analytical and graphic data and information into appropriate forms meant for establishing existing and/or new state in the following, most frequent, shapes: classic, with four basic phases, or rather six modified phases, then classic, with five basic phases (Kunze method) and classic, with six basic shaping level, along with the newer one, with four basic phases performed in four days; micro-movement study: Predetermined Times System **PDTS** division operation study on suboperation and sequences: Maynard Operation Sequence Technique **MOST**, [3]; system theory application, videotechnique and videosomatography; informationally-communicational technology and software application; Parkinson`s administration growth law or the growing pyramide; special systems of step-by-step improvement (Kaizen, japanese, or rather a continuing improvement process **kpp** or Kontinuirlicher Verbesserung process **KVP**), with special methods, techniques and procedures (**SMED**, **OTED**, **JIT**, itd.).
Stated approaches, systems and technologies contain the belonging methods, techniques and procedures and both can be divided according to different criterias: they`re based on logical induction procedures (analytic procedure) and deduction procedure (systemic approach), and are being used exclusively for the work rationalization or integrally (work rationalization and time study)..

4. INNOVATION SYSTEM AND PROCESS

Transformation of the created and selected ideas into an invent and forms of its application most often as a result gives the following unmaterialized or non-goods forms, with the belonging characteristics, that are represented in the further text.

The invent is a human creation/ work, that must have at least two basic characteristics: the novelty factor, a possibility of functioning and/ or transformating into some shape of its application (patent, licence, cession, know-how), [2].

Patent is a public document, that was issued by the government of some state to the inventor or his succesors (organization). That is the right gained on the invent. The development of the funding and of the use of the rights instruments protection area from the industrial ownership area has been created through following most important levels and their belonging characteristics: (1) the protection was completely left up to the national laws, (2) the protection was realized through international contracts, [4].

Licence is one contract about yielding of utilizating law for the invent protected by the patent. During technology transfer, salesman of the licence usually protects his own rights and makes privileges for himself.

Cession is one contract about transmission of property over the patent. When you buy a patent, you work with it what you want. **Innovation** is a process that embraces the use of knowledge and of the important informations and commercialization of something new and usable, [2].

Know-how contains the inventive work and the other practical knowledges of innovators built-in transmission/ transfer technology. Notions of the usually materialized product shape and services aren´t object of this article. **Innovation** is the **enterpreneur`s** tool, which he uses for the search **for the resources or the sources of innovations**, the changes and their symptoms, which points in the direction of the good opportunities for successful **innovations**, and all with the application of the principle of successful innovation. Some matter or an occurence can be found unusable, until the man finds the way for their use, and then they become **the resource/source or the mean**, at first technological, productive, business or social, and then finally, the economic, expressed in the capital, material resources, work force, management cadre and time. In the social and economic sphere, the biggest resource is the buyer`s power. That`s why the innovati isn`t a technical term, but a social and economic term; the most useful socail innovation of the 20^{th} century is the management function or "the used knowledge", [5].

Systemic innovation represents systemic search for the source of good opportunities for two special groups; **group I** contains following sources: suddenness, different discrepancies, dependence of innovations on the processing needs, surprising changes in the industry or market structure; **group II** includes the following sources: demographic indicators, changes in the comprehensions/predictions, behavior and opinion, new (scientific and non-scientific) realization/new knowledges, intelligent idea.

Innovation principles contain references for and against the innovating, and the innovation conditions contain also the innovator-inventor relationship, since most often, the innovator has an experience of a long work in the production organization, the sense and the ear for the choice and the innovation organizing from the idea to the buyer, which shows that the leaders of all levels can much easier and more often be innovators than workers can. Innovators don`t have to be, but more often than not, are the inventors, [5].

5. SYSTEMS AND ENTERPRENEURISTIC PROCESSES

In the **enterpreneurship**, the words **enterpreneur** or **Unternehmer** mean chaos or a mess and represent the manifest of unsatisfaction with the existing state, along with need of the different kind of working, but not in the exclusively better way of the existing one. The enterpreneur switches economic resources from the area of less productivity into the area of higher productivity and bigger profit. Enterpreneurs usually don`t bring the change, but they search for it, consider it a normal and desirable occurence, and therefore, react on it and use it as a good opportunity. The enterpreneurs are innovators. The enterpreneurship is a creative destruction. The enterpreneurship isn`t "natural", it`s not "creative", but it`s a business. There are four known enterpreneuristic strategies: "Who will go faster, who will go higher": it`s important to be first or to dominate at some market.

"Hit it, where they`re not present.", this enterpreneuristic strategy is made of two completely different enterpreneuristic strategies, the creative mimicking and the enterpreneuristic judo; finding and taking

over the special “ecological niche/hole/appropriate place”; changing the economic characteristics of a product, a market or an industry. The enterpreneurs in practice often combine elements or entire two or three strategies, [5].
According to A.Smith´s cites and later M.Friedmann´s and J.M.Keynes´s theories, classical economy strives for the optimal usage of existing resources, using theory of offers´. In approach and models of all previously known economists, entrpreneur is included in outer influences. Just J. Schumpeter 1911. inwork “Theory of economic dinamics” rejected classical economy, with the hypothesis that entrepreneur-innovator causes dinamic balance, whose consequences is the theory of demand. Concequencially, unsuccessful entrepreneurs fix and redesign existing condition, while successful entrepreneurs create new values with pretence of matter for occurence into resource.

6. ERGONOMICS

The man`s work has been researched for ages by independent researchers and scientists or groups of them, who solved the work problems with some of the following boundaries: partiality of solving, one-sidedness, in some researches only individual objects have been researched, and in some, the joint and/or interactive influence of the two or more of stated objects.
Often, an entire sequence of technical problems has been solved as a priority, without thinking at all or enough about the man; work physicians and others have researched only the man, along with his possibilities and abilities, just like the influence of work condition and of the environment on him, but most often, or exclusively according to theoretical viewpoint, and not with the most significant influence on the application in the production. There are more than one ergonomics definition, a majority defines ergonomics as a work adjustment according to the man/operator in the system “man-work place-work methods-environment”, [6,7]. Somewhat different one defines ergonomics as an area, that contains multidisciplinary research, along with the interdisciplinary shaping of ergonomic principles with the purpose in the system “man-work place-work methods-environment”, and all that with the purpose of work humanization, [8].
Special definitions are determined and coordinated with the most important kinds of ergonomy, and those are: conceptual, systemic, correctional, hardware and software ergonomics. **Ergonomics** uses systemic innovation principles in the multidisciplinary approach to more different areas of research, along with the interdisciplinary application of research results. In the same research, 73 ergonomic principles have been shaped, that are divided in five groups, [8].

7. CONCLUSION

The most important conclusions are:
1) modern society will depend, more and more, on creativity, which both systemically and individually has to be built-in in the designing and the use in the number of areas of human activities, as well as including modern management strategies and methods,
2) the bearers of important decisions have to be acquianted with mentioned techniques and methods and be willing to change existing blocks and mistakes about impossibility of creativity learning,
3) the idea generating procedure has to ensure a transfer of the better ways of thinking and not just of the better ways to perform.

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