

## SOFT SYSTEMS THEORIES FROM MARIBOR, SLOVENIA, AND THEIR USE IN THE REAL WORLD<sup>1</sup>

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### ABSTRACT

Based on Mulej's Dialectical Systems Theories and Kajzer's work on Business Cybernetics at the University of Maribor, Faculty of Economics and Business, several new systems and cybernetic theories and their applications in the real world have been created, over the forty years since the first publication about the Dialectical Systems Theory. This experience is briefed here.

**Keywords:** Application; Business Cybernetics; Control Systems Theory; Cybernetics of Security Systems; Dialectical Network Thinking; Dialectical Systems Theory; 4<sup>th</sup> Order Cybernetics; Innovation Management; Lateral Thinking; Law of Requisite Holism; Personal Requisite Holism; Quantified Dialectical Systems Theory; Six Thinking Hats; Social Responsibility; Standardized Decision Making; Strategic Management; Universal Dialectical Systems Theory.

### THE SELECTED TOPIC AND VIEWPOINT

All authors of this paper are both practitioners and academics. We see the crucial difficulties of businesses, economies, and politicians in their lack of holism of approach and wholeness of outcomes; oversights and resulting problems can be avoided better with interdisciplinary creative cooperation. Norbert Wiener practiced it to create cybernetics; Ludwig von Bertalanffy wrote on

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<sup>1</sup> Most details can be found in the book: Mulej M et al. 2013. *Dialectical Systems Thinking and the Law of Requisite Holism Concerning Innovation*. Litchfield Park: Emergent Publications; and references quoted there (especially in the chapter by Vesna Čančer and Matjaž Mulej). The related further book is: Mulej, M., Dyck, R., editors. 2013. *Social Responsibility beyond Neoliberalism and Charity*. Bentham (forthcoming), in four volumes. Related collection of articles are being prepared for *Systems Practice and Action Research* (on 'Measures and Measurement of Social Responsibility'), *Systems Research and Behavioral Science* (on 'Social Responsibility as a New Socio-Economic Order'), *Kybernetes* (On 'Systemic Behavior, Requisite Holism and Social Responsibility in Tourism') and *Nase gospodarstvo* (On 'Economics of Social Responsibility').

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page VII of his Foreword that he had created his General Systems Theory *against overspecialization*, i.e. to support interdisciplinary creative cooperation. Along this path we created the 'Maribor school of soft systems theories' including Mulej's *Dialectical Systems Theory* (1974), Mulej and Kajzer's *Law of Requisite Holism* (1998), Potočan's *Standardized Decision Making* (2001), Potočan's, Kajzer's and Mulej's *Business Cybernetics*, Rosi's *Dialectical Network Thinking* (2004), Mulej and Hrast's seeing social responsibility as applied systems theory (2006) and spread by HORUS Award for Social Responsibility, Mulej Matjaž and Nastja's seeing De Bono's Lateral Thinking and Six Thinking Hats as applied systems theory (2006), Mlakar's *Control Systems Theory* (2007), Božičnik and Mulej's *Universal Dialectical Systems Theory* (2011) and *4<sup>th</sup> Order Cybernetics* (2011), Čančer and Mulej *Quantified Dialectical Systems Theory* (2010), Žižek's *Personal Requisite Holism* (2012), and Ivanuša's *Cybernetics of Security Systems* (2013), and many applications of the Dialectical Systems Theory to topics of innovation, innovation management and social responsibility, e.g. by Ženko (1999) and Štrukelj (in process).

### THE NEW SYSTEMS THEORIES AND CYBERNETICS – IN BRIEF SUMMARIES

- *The Dialectical Network Thinking* (Rosi, 2004) resulted from a new synergy of the Network Thinking, DST, and Project Management to provide a tool for a requisitely systemic, i.e. holistic, thinking about and in the management of complex business entities in which very much networking occurs, such as railways.
- *The Control Systems Theory* (Mlakar, 2007) resulted from a new synergy of the Living Systems, Viable Systems, DST and its USOMID, the 6 Thinking Hats, Diffusion of Novelties, and Heart Storming to provide a tool for requisitely systemic, i.e. holistic, thinking about and in the management of complex public service entities such as public health institutions.
- *The Business Cybernetics* (Potočan *et al.*, 2005) resulted from a new synergy of the Kajzer's earlier work on economic cybernetics, Potočan's earlier work on decision-making and its standardization on systemic and cybernetic principles, and Mulej's DST.
- *The Universal Dialectical Systems Theory* (UDST) (Božičnik and Mulej, 2009a) is resulting from the parallels between the development phases of physics (as a basic natural science), management/organization (as a science on orchestrating organizational parts for goal-focused leading and working in line with the law of requisite holism and resulting success), and systems theory (as a science on holism as a world-view and methodologies to attain it).
- *The 4<sup>th</sup> Order Cybernetics* (Božičnik and Mulej, 2011) is a synergy of DST, UDST (Božičnik and Mulej, 2009a), cybernetic of 0, 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> order (as appropriate) and cybernetics of conceptual systems.
- *The Requisitely Holistic Inventive-innovative Project Management (of the strategic crises)* (Vrečko, 2011) is a synergy of DST, innovation management, and the 3<sup>rd</sup> generation of project management.
- *The Quantified Dialectical Systems Theory* (Čančer and Mulej, 2010) is resulting from a new synergy of both DST and the applied computer supported qualitative and quantitative methods that can help individuals or groups in researching important complex decision-making problems; among them authors emphasize the multi-criteria decision-making ones.

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- *Cybernetics of Security Systems* (Ivanuša, 2013, under Mulej's co-supervision) finds that a National Security System should be a dialectical system recognizing the Law of entropy, the Law of Requisite Holism, and the Law of hierarchy of succession and interdependence. In the present research Mulej's Dialectical System Theory (Mulej, 1979) in the combination with Living System Theory (Miller, 1978), Viable System Theory (Beer, 1984), Fuzzy – Fuzzy Sets and Systems (Zadeh, 1965), and *The Cybernetics of Conceptual Systems* (Umpleby, 1994) as well as Mulej's Methodology of Creative Cooperation "USOMID" has been applied as a reanimation, regenerator and Theory (if one uses medical vocabulary).

### **The Dialectical Network Thinking**

The Dialectical Network Thinking (DNT) (Rosi, 2004) is a soft-systems methodology aimed at complex problem-solving and leading toward innovation for the problem solving process. Following Rosi and Mulej (2006a: 1171), 'DNT requires and supports team work; supports requisite holism in the human work on development of organizational and business systems (OBS); supports the organization/OBS structures aimed at innovation and development; shows what kind of OBS suits the modern environment and is capable of using the DNT; stresses the interdependence of development and structuring of OBS with the development of project management; supports change management in OBS; makes easier the detection of the need to restructure the OBS; supports learning and unlearning in OBS; and serves as the bottom line in making of the contemporary organizational culture'. Following the results of practical applications in railway management, the DNT authors (Rosi and Mulej, 2006a) concluded that it leads toward more holism and innovation in problem solving, which is a precondition for a more sustained mastering of the modern turbulent business conditions. It explains how crucial is a correct and explicit choice of the first steps of the complex problem solving; namely, directing problem solving in a less important direction can result so: 'hardly usable outcomes ... may ruin OBS or even life on planet Earth' (Rosi and Mulej, 2006a: 1172). For further details see e.g.: Rosi (2004), Rosi and Mulej (2006a; 2006b), Rosi and Kramberger (2008), Rosi and Rosi (2011).

### **Control Systems Theory**

Holism of consideration must be requisite for success, but the current unavoidable specialization endangers it. Even inside the systems theory specialization is growing narrow. There is no visible link between single systems theories. Author is creating a new systems theory and calls it the Control Systems Theory (CoST). It results from their synergy of the Living Systems Theory, the Viable Systems Theory, the Dialectical Systems Theory, and several methods of creative cooperation and realization of ideas as innovations, such as USOMID, the 6 Thinking Hats, Diffusion of Novelties, and Heart Storming.

The new CoST provides a new basis for a possible innovation of social business-organizational systems such as organizations of the public sector, e.g. the health care sector in Slovenia. CoST eliminates a lot of the possibility of excessive self-organization, casual synergies, and one-sided intuitive measures.

In addition, the CoST model has no elements of formal work organization, which would necessitate essential staff reorganization in the sub-systems within the Slovenian health care system. The model transforms practice informatively and instructively into a self-controlled and self-supervised system. In this way it aims at eliminating errors and mistakes in the work process

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and the impact of negative emotions of humans over their work results. However, it introduces a number of essential novelties into the health system control, which could gradually become innovations.

### **The Business Cybernetics**

The Business Cybernetics (BC) (Potočan et al., 2005) is a specific cybernetic dealing with organizations as business systems (BSs) from viewpoint of managing/impacting them (Potočan and Mulej, 2009). Besides the structure and information, BC is trying to cover the basic, information, and managerial processes, their interdependences, resulting interaction, and resulting synergies. BC is trying to make room for consideration of the general, group-specific, and individual parts of attributes of BS. BC therefore applies cybernetics to BSs, based on selected viewpoints and resulting purposes, goals, methods, methodologies, given or created circumstances of use, and characteristics of its user. BSs can understand and apply cybernetics to their work as cybernetics of the 1<sup>st</sup> – 3<sup>rd</sup> order or as the cybernetics of conceptual systems, or as the dialectical system of all of them (Potočan and Mulej, 2009). BC deals with specifics of humans and organizations. It can help owners, governors, managers and other professionals and other stakeholders attain synergies of several models in order for the BS – requisitely holistically considered as a dialectical system of the attributes that can be used as guidelines – to come closer to the requisite holism. (Potočan and Mulej, 2009) For further details see e.g.: Potočan (1999), Potočan and Mulej (2003; 2007a; 2007b; 2009), Potočan et al. (2005).

### **The Universal Dialectical Systems Theory**

The Universal Dialectical Systems Theory (UDST) can be applied as a bridge between natural and social sciences (Božičnik and Mulej, 2009a) ‘as a common denominator of the values and methods of the requisitely holistic observation, perception, thinking, emotional and spiritual life, decision-making, and action by interdisciplinary creative co-operation and information, as a means to link natural and social sciences’ (Božičnik and Mulej, 2009a). The article is quoted often.

### **The 4<sup>th</sup> Order Cybernetics**

The 4<sup>th</sup> order Cybernetics has already been applied to the issue of a sustainable future. Its results are less one-sided behavior, resulting in fewer failures and in more success in action and control of complex reality/events/processes by behavior, made of requisite holism/wholeness of behavior, consisting of monitoring, perception, reflection, thinking, emotional and spiritual viewpoints, decision-making, communication, and socially responsible action. According to Božičnik and Mulej (2011), sustainable future must unavoidably result from the current socio-economic crisis surfacing in 2008-, and ‘4<sup>th</sup> order Cybernetics might help humans enable survival of their current civilization in a sustainable future’ (Božičnik and Mulej, 2011: 678). For further details see e.g.: Božičnik (2007), Božičnik *et al.* (2008), Božičnik and Mulej (2009a; 2009b; 2010; 2011).

### **Requisitely Holistic Inventive-Innovative Project Management (Of the Strategic Crises)**

Holistic inventive-innovative project management received a newly developed model for dealing with changes, dynamic environment and most of all, with strategic crises (Vrečko, 2011). Vrečko combined DST and Innovation management with the 3<sup>rd</sup> generation of project management

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(according to Tanaka, 2011) and thus contributed to the formation of the 4<sup>th</sup> generation of project management. Clarifying the synergies of the innovation- and project management and widening the understanding of the role of systems theories and systems thinking in pre- and post- projects' processes enabled the development of Vrečko's two-dimensional model for mastering strategic changes and crises in business systems (BS). The model is made of:

- *The process aspect of managing changes* consisting of the sub-processes of strategic and project treatment of changes; developing the necessary measures, projects, and programs; and realizing them; and
- *A systemic view of managing the changes*, identifying the requirements to be met by BS as a whole (an appropriate organizational and project maturity, taking into account the laws of requisite holism and of hierarchy of the sequences and interdependences between the changes taking place in a BS environment as well as the actions, projects, and programs in which BS is set to respond to changes in business environment while taking into account the necessary creativity, inventiveness, and innovation of management, managers' and other employees' behavior in the BS).

### **The Quantified Dialectical Systems Theory**

The Quantified Dialectical Systems Theory (QDST) (Čančer and Mulej, 2010) arises from the need for the appropriate knowledge about the basics of both systems theory and the applied computer supported qualitative and quantitative methods that can help individuals or groups in researching important complex decision-making problems, which authors consider necessary (but not sufficient) conditions for innovations. Among them authors emphasize the multi-criteria decision-making (MCDM) ones, which should be used when intuitive decision-making is not enough for several reasons: e.g. conflicting criteria or disagreement between decision makers what criteria are relevant or more important, and what alternatives and preferences are acceptable (Čančer and Mulej, 2006). In this case, in attempts to increase the extent to which company strategies and operating practices are oriented toward innovation authors emphasize the capacity of dialectical systems thinking as a precondition for requisite holism, and therefore for successful and efficient creating and decision-making.

When applying MCDM methods, based on assigning weights, to several real-life decision-making problems at the micro and at the macro levels (for an overview see (Čančer and Mulej, 2010)), authors concluded that they can be approached step-by-step. The framework procedure for MCDM by using the group of methods based on assigning weights includes the following steps: *problem definition, elimination of unacceptable alternatives, problem structuring, measuring local alternatives' values, weighting the criteria, synthesis and ranking, sensitivity analysis*. Čančer and Mulej (2010) have already demonstrated how all ten DST's guidelines defining the subjective starting points before objectives definition (values and emotions, knowledge on contents, and knowledge on methods, as a dialectical system) can be followed when approaching problems by using the framework procedure for MCDM, as well as all ten DST's guidelines concerning implementation of starting points. Real-life examples show that mutual assistance of DST and MCDM depends on the problem's type.

The Quantified Dialectical Systems Theory attempts to fortify the requisitely holistic thinking with quantitative methods supportive of decision-making on a requisitely holistic basis, which is not a qualitative one only. In contrast to original procedures, built for each particular MCDM

method, the presented decision-making procedure provides the framework, which allows decision makers using several MCDM methods, based on assigning weights; moreover, it can be adapted to the decision-problem's particularities. It can be concluded that all ten DST's guidelines defining subjective starting points for objectives definition as well as all ten DST's guidelines concerning implementation of them can be followed when approaching problems by using the framework procedure for MCDM. Real-life examples show that mutual assistance of DST and MCDM depends on the problem's type. In this chapter we present three application possibilities illustrating the capacity of QDST for getting out of the current crisis.

### **Holism, the Law of Requisite Holism and Requisite Holism of Individuals**

»Everything starts with understanding the nature of wholes, and how parts and wholes are interrelated. Our normal way of thinking cheats us. It leads us to think of wholes as made up of many parts; in this way of thinking, the whole is assembled from its parts and depends upon them to work effectively. If a part is broken, it must be repaired or replaced. This is a very logical way of thinking about machines. But living systems are different. Unlike machines, living systems, such as your body or a tree, create themselves. They are not mere assemblages of their parts but are continually growing and changing along with their elements« (Senge et al, 2005, 5). Holism means that all attributes from all viewpoints and all their relations and resulting synergies are considered (Mulej, et al, 2000; Mulej and Potočan, 2007). This reality can of course not be captured by humans; therefore humans need Mulej/Kajzer law of requisite holism (1998).

The humans' complex comprehension of life is lower than their ability of influencing it, deciding, acting and omission. The huge complexity brings the individuals face to face with inevitability of both specialisation and holism (Mulej et al, 2000, 33). The contemporary debate on complexity requires combining the specialisation and (dialectical) system style of thinking and acting into a capability of interdisciplinary cooperation, in order to exceed the boundaries between single sciences and the poor link-up of sciences, thus practising the interdisciplinary and creative cooperation, yet not at any level, but at a level of the "requisite holism" (Mulej et al, 2000, 65). As mentioned before, the perfect/total holism is not practicable and often not indispensable, and one-sidedness is insufficient many times. Therefore humans strive to be requisitely holistic, thus successful enough to be able to overcome – at least temporarily - the law of entropy. They try to find a middle way between too much complexity and uniformity, but there is no uniform, so called scientific, solution, because of intertwining of science, intuition and good luck in the everyday life (Mulej et al, 2000, 73-74). It all depends on humans.

Mulej points out that the human has to become as holistic as possible and has to consider all important attributes to the highest possible extent (2000, iv). He ascertains that neither the human race as a whole nor humans as individuals can exist or even live well, if one does not stop to be extremely one-sided in the subjective part of one's starting points within the process of human's action and behaviour. Thus, it is not surprising that Mulej (1979, 61) defines the holism as one of the ten rules of methodology for a requisite holism of human acting (observing, perception, comprehension, consideration, emotional and spiritual life, decision making and action) called the Dialectic Systems Theory.

Having in mind that the human is (in synergy) a physical, mental, social and spiritual entity, implementing devotedly different life roles, one has to be requisitely holistic – one must consider all that is important to a highest possible level. Thus, the (requisite) holism of, e.g., the individual

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as an employee should be established by a set of techniques, all way from the techniques enabling physical balance, the techniques of life art, and techniques of personality development, to the techniques of professional and working development. The requisite holism of individuals as employees positively influences the success of organisations, through the successful managing of stress, work satisfaction and wellbeing. Thus, organizations should create conditions for the implementation of the mentioned techniques for developing and strengthening of the requisite holism of individuals as employees, because they will get, what they will enable and appreciate. Prerequisites for prevention of repetition of (financial, economic and also social) crises, as well as for their abolition, include requisitely holistic individuals. Hence the organizations should look at humans as multi-layered, not only as professional entities. In synergy, not only separately, we define humans as: (i) physical, (ii) mental, (iii) social, (iv) spiritual, and (v) economic entities, marked by requisitely, though not absolutely, holistic pattern of relatively permanent characteristics, due to which the individuals differ from each other, and also as specialized professionals. All these and other attributes form synergies (Šarotar Žižek 2012).

Thus, we define the requisite holism of an employee as an individual existing and conscious of self as (Šarotar Žižek 2012):

- Natural, physical and biological person respectively, implementing active techniques to gain physical balance (healthy food, Ayurveda, massage and aromatherapy, relaxation, breathing techniques, physical activity, observance of biological rhythm, additional medical treatments etc.),
- Mental entity, enriching sentiment, perception, mind and will-power by life balancing techniques (emotional intelligence, life in present moment, positive thinking etc.),
- Social entity, building quality communication with others by the techniques of professional and working development and social holism (education, training, gaining working experience within professional career, etc.),
- Spiritual entity, longing after self-actualization and the sense of life, carrying it into effect by the techniques of spiritual development (spiritual intelligence, meditation, mantras, yoga, logo-therapy, practical Buddhist principles for building balance, etc.),
- Economic entity, striving to satisfy one's material needs as a person, family member, co-worker and as a member of a wider society (partnership, parent-ship, employment, membership in associations and political parties, etc.).

In this way the behaviour of individuals, who are willing to practice interdisciplinary cooperation, becomes more socially responsible. Social responsibility offers a possible answer to crisis, arisen in 2008; hence the individuals evolve from being merely owners to requisitely holistic creators, which was considered necessary already by Erich Fromm, and before him also by A. Smith; such individuals enjoy subjective and objective wellbeing more than the others do.

### **Dialectical System Theory Applied to Innovation Management**

Human survival depends on their creative thinking and problem solving. Our definition of invention-innovation-diffusion process (IIDP) is complicated and complex and to achieve requisite holism dialectical system theory should be used (Mulej and Ženko, 2002). For an innovation all twelve groups of preconditions should be considered and adequately managed: 1. Invention, 2. Entrepreneurship and entrepreneurial spirit, 3. Requisite holism, 4. Management, 5. Co-workers, 6. Innovation-friendly culture, 7. Customers, 8. Competitors, 9. Suppliers, 10.

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Natural environment, 11. Socio-economic environment and other objective conditions, and 12. Random factors (such as luck). All these preconditions include the most important views and compose a dialectical system. To achieve requisitely holistic approach many specialists should be included in IIDP and their cooperation is of vital importance. The success depends on their ethics of interdependence and cooperation (Mulej et al. 2000). Mulej with coauthors developed the methodology and methods of dialectical system thinking in innovative processes: USOMID. They can be combined with other methods of creative thinking and decision making, e. g. 'Six thinking hats' by De Bonno (Mulej and Mulej 2006). Innovation is needed that reaches beyond technology to values, culture, ethics and norms (VCEN) of humans.

### **Combination of USOMID-SREDIM with the Six Thinking Hats Method**

The point of this new combination emerged from the insight that the Six Thinking Hats (6TH) method mostly covers the emotional part of the human personality, while the USOMID-SREDIM procedure covers the rational one. The combination means that in every step if it the appropriate hats are applied. The USOMID model of creative cooperation enables smooth work covering several professional views and organized procedures, thus leading towards the law of requisite holism. This enables a lot of creativity and a lot of innovation, not invention only. A problem that has remained unsolved over all nearly 30 years is (1) the relative waste of time, (2) fight/arguing and bad feelings. The organizational jobs are supposed to solve this problem, but it does not always work without trouble. This is where the 6TH applies.

The 6TH enters the scene as the third dimension along with SREDIM and the four USOMID steps in every-one of them. The 6TH namely enables all circle members not to argue, but to think in the same direction, and to do so in terms of the exposed part of values rather than of knowledge. Thus, our tendency towards requisite holism is not blocked. The Six Thinking Hats are namely neither used by one person nor by all at the same time, but all circle members use the same hat, and later on another one, at the same time. According to De Bono, this replaces the old western habit that the discussion participants close themselves in their respective viewpoints (like e.g., solicitors or politicians or armies or angry children) and fight for the upper hand rather than for mutual completion and a shared and beneficial new solution (De Bono, 2005). In other words, the 6TH methods supports well the creative cooperation, but from another viewpoint than USOMID; 6TH points more to the values-and-emotion part of the human personality than to the professional part. Both of them are interdependent anyway. There are a number of methods for team work that tend to reflect a similar logic with no explicit link to the (dialectical) systems thinking; they are very useful, too.

### **Dialectical System Theory Applied to Strategic Management**

The greatest danger for humankind and the rest of the world is humankind. We, humans, are those who need to change our attitude toward nature, society, economy, and enterprises. How Dialectical Systems Theory (DST) (Mulej et al., 2013) can influence enterprises' strategic decisions? We combine DST, MER model of integral management (Belak, Ja., Duh, 2012), and own knowledge. The modern enterprises in (re-)crisis environment of rapid, dynamic change and globalization, must innovate their governance and management by using the dialectical system of viewpoints to innovate tangible and intangible factors that are interdependent and critical for innovation of enterprises' governance and management. Such enterprises improve their



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competitiveness and achieve great performance through innovation of products, processes and social innovation (Thommen 1996: 793–794), i.e. technical-technological and non-technological innovations. Technical-technological innovations depend on non-technological innovations and both on enterprises' governance and management, i.e. on the invention-innovation-diffusion process (IIDP) regarding the enterprises' governance (and values) in the direction of dialectical systemic behavior. In this process, it is necessary to consider the law of requisite holism (Mulej, Kajzer, 1998), depending on the law of the hierarchy of succession and interdependence, against the law of entropy: using the guidelines for the definition of the starting points and guidelines for the implementation of the starting points (See: Mulej et al., 2013). The intangible key factors for innovation of enterprises' governance and management include enterprises' values, culture, ethics, norms, and habits (compare Potočan, Mulej, 2007), enterprises' vision, and existing enterprise policy (Štrukelj et al., 2012); the intangible key factors for innovation of enterprises' governance and management include enterprises' strengths and weaknesses, and the enterprises' opportunities and threats mainly determined by their environment. Summarised enterprises' governance and management should be holistic: take all essential and only essential viewpoints into consideration and be regularly innovated. The accepted strategic decisions are more systemic and holistic, therefore more effective, and can lead toward sustainable development.

### **Horus – Slovenian Award for Social Responsibility: Promotion of Systemic Behavior**

IRDO (Institute for the Development of Social Responsibility) and PRSS (Slovenian Association for Public Relations), under the auspices of the President of the Slovenian Republic, publish their call for granting the Slovenian Award for Social Responsibility (SR) 'Horus' yearly (Hrast 2011). Numerous other interested professional organizations co-operate.

HORUS is aimed to award holistic approaches to SR.

The HORUS Award is intended for companies and institutes in Slovenia, which are aware of their SR and include SR in their work: in relation to the environment, to their employees and other company stakeholders, business partners, their wider social environment, and in product and service development. SR must be included in the strategic management of organizations (companies, institutes, associations) and in their business practices. This holds in times of crisis too, as SR yields benefits in the long run.

In November 2010 the International Standards organization ISO released the ISO 26000 Standard on SR. It includes seven principles and topics, which were already included in the HORUS Award at the time of its inception in 2009. Both concepts that link them were also covered – the interdependence of subjects, measures, people and their organizations - and the holistic approach to these.

Filling out the questionnaire helps the applicants to double-check, create, or renew their own strategy of SR and business excellence.

The mission of the HORUS Award is to encourage informal systemic behavior by ethics of interdependence, holistic behavior, active innovation, and business responsibility in Slovenian organizations. The HORUS Award givers want to strengthen awareness about SR, and to alert everyone about humans' interdependence, which some are not fully aware of. Lack of SR makes humans and organizations (as human tools) often one-sided rather than holistic, and therefore unsuccessful. One should remember that every individual is responsible for every action inside and outside his/her organization. All individuals, together with their leaders, create an effective,

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responsible, or irresponsible organization. The Horus award givers promote good practice publicly, encouraging companies to have more responsible and effective operations.

Goals of the HORUS award include:

- Public awareness about the meaning/importance of SR;
- Promotion of socially responsible companies' practice;
- Education about the latest practices of SR in Slovenian and foreign companies of Slovenes;
- Awarding the most socially responsible organizations;
- Publishing a manual with examples of good practice of SR.

Criteria are aimed at requisite holism, which is visible from the following short list:

1. Environmental responsibility and sustainability;
2. Responsibility to employees;
3. Responsibility to Communities;
4. Responsibility to customers and suppliers;
5. Leadership;
6. Involvement of SR in the company's strategy and compliance with international guidelines;
7. Stakeholder involvement;
8. Action plans and key success factors;
9. Measuring the results, communication and reporting of SR;
10. Certificates, awards about SR.

Details are visible at [www.horus.si](http://www.horus.si).

### **Cybernetics of the Security Systems**

Terrorism is a complex feature against which a successful defense is impossible, if a single profession and a single viewpoint of consideration is applied; thus, too many essential attributes would not receive attention. If, e.g., we must defend our-selves against means of mass destruction, we must use a synergy of findings from natural, social, and engineering sciences. This requires creative interdisciplinary cooperation, and therefore professionals who are both specialists and able and willing to listen and hear well specialists from other disciplines because they disagree with each other and thus complete each other up. They possess and apply ethics of interdependence of the mutually different ones as components of the same entity. This capacity results from application of Mulej's (1979, 2000) Dialectical Systems Theory (DST) as the one among many systems theories that is not focusing on a precise description of complex features labeled systems; DST rather develops further the basic idea of Bertalanffy, the father of systems theory, who created it against the current over-specialization and therefore as the worldview of holism/wholeness and related methodology. On its basis we did create – by synergy of several types of systems theories and cybernetics – a new kind called 'cybernetics of defense systems'.

Resolution on National Security Strategy of the Republic of Slovenia (ReSNV-1, 2010) as an umbrella document i.e. starting point and its consequent manifestation in reality: National Security System (NSS), has been carefully (= carefully depicted dialectical system of starting points) analyzed and diagnosed according to carefully selected and announced diagnostic steps. Results of the mentioned scientific diagnostic procedure suggested that the general status of the National Security System is rather (= has been recognized as) pathological. Our diagnosis of the NSS (= as a direct pathological consequence of the Resolution on National Security Strategy of

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the Republic of Slovenia) was summarized as follows: NSS is not a living system, is not viable, fuzziness is confused by probability, the NSS is rigid instead of approximate, relatively isolated, maintaining the metaphysical and conservative concepts, their subsystems convey homomorphism instead of isomorphism, innovations are far less than evident. Hence, recovery of the NSS (= its precursor: Resolution on National Security Strategy of the Republic of Slovenia) is suggested: NSS should be a system recognizing the Law of entropy, the Law of Requisite Holism, and the Law of hierarchy of succession and interdependence. In the present research (Ivanuša, Podbregar and Mulej, 2013) Mulej's Dialectical System Theory (Mulej, 1979) in the combination with Living System Theory (Miller, 1978), Viable System Theory (Beer, 1984), Fuzzy – Fuzzy Sets and Systems (Zadeh, 1965), and The Cybernetics of Conceptual Systems (Umpleby, 1994) as well as Mulej's Methodology of Creative Cooperation "USOMID" has been applied as a reanimation, regenerator and Theory. Our scientific research abrogates and neologies at the same time; we created a novelty for the routine. The possibility of reaching the opposite effect (= negative effect); - constantly searching for synergies -, has been avoided by the Concept of Requisite Holism (Mulej and Kajzer, 1998), offering realistic pathway to attain the goal: Novel Cybernetics of Security Systems.

### CONCLUDING REMARKS

DST helps people to accept the VCEN of holism/wholeness and become creative and even innovative by creative interdisciplinary cooperation, including the organizational strategy. The Control Systems Theory provides information to managers of public sector organizations, how to make their management style more requisitely holistic and hence successful. The Dialectical Network Thinking provides similar information to organizations with a lot of networking, such as railways. The Business Cybernetics provides similar information to managers of any organization as a business system. The 4<sup>th</sup> order Cybernetics can help humans to attain the requisite holism of the human approach and the requisite wholeness of outcomes of human action. Humankind should take advantage of UDST and the 4<sup>th</sup> order cybernetics – not only to describe and understand the problems, but to also take the socially responsible and needed action – in order to overcome the problems and assure its own sustainable development/future, and existence as the current civilization' (Božičnik and Mulej, 2011: 678). Requisitely holistic inventive-innovative project management can help managers mastering strategic changes and crises in business systems. The Quantified Dialectical Systems Theory attempts to fortify the requisitely holistic thinking with quantitative and qualitative methods supportive of decision making on a requisitely holistic basis, which is not a qualitative one only; it enables consideration of all dimensions of the so-called sustainable performance: economic, environmental, ethical and social dimension; by prescriptive models – usable decision-making procedures, it enables sensible use of intuition and experience in several problem (crisis and affluence) situations. HORUS fortifies systemic behavior via social responsibility. Cybernetic of Security Systems incorporates systemic behavior into the armed forces.

This means that new systems theories from Maribor, Slovenia, have their specific information capacities with quite a big practical applicability and theoretical background. Each of them covers another part of information needs for humans to understand and master their lives and circumstances; with a common synergic element – the DST's capacity – it has therefore its own

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information capacity and therefore its own capacity for getting out of the current global socio-economic crisis.

**References** are mostly available from the books mentioned above and from authors.