Complementarity of the Living Systems, the Dialectical Systems Theories and Social Responsibility: the Case of Public Medical Care in Slovenia

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***Abstract*-Systems science, mostly, supports synthesis and integration through a holism approach for human work and (requisite) wholeness of work's outcome. Among many systems theories, the Living Systems (LST) and the Dialectical Systems Theories (DST) are equally old. If both a quite holistic insight and creativity are needed, a combination of the LST and the DST is a better choice than using each of them separately. LST can expose many details, while DST can support an innovative action that is needed in a way out of the current global socioeconomicc crisis. LST alone can hardly provide an action, especially one of a creative orientation. DTS alone can hardly provide all the necessary insight, but it can provide a bridge between different aspects of the process at stake and help them generate creative synergies of different professions' insights. A case of combining both LST and DST in studying public health care proves to be fruitful. DTS can influence people to use LST and its insight in a creative way. The social responsibility reflects principles of DTS (interdependence and holistic approach) explicitly and supports informally the systemic behavior to contribute to sustainable development in the public medical care too.**

Key words - Dialectical Systems Theory; Living Systems Theory-Medical Care; Slovenia; Social Responsibility

I. INTRODUCTION

Public medical care is one of the public services; it is crucial for the well-being of population, but expensive and hence in need of non-technological innovation. The European Union stated that systemic thinking is crucial in innovation processes (EU, 2004). The question is: which among the many systems theories (see: François, 2004) should be used. We decided to make a synergy of James Grier Miller's book Living Systems (1978) and Matjaz Mulej's book Creative Work and the Dialectical Systems Theory (1979)[i]; both became bestsellers in their respective home countries at the same time. Their authors did not know each other, they had very different backgrounds, and they offered help in solving quite different problems. Both of them worked in the framework of systems theory, which they understood rather differently. In his courses on Systems Theory, Mulej has presented the LST along with the DST and a few other soft systems theories (Mulej and co-authors, 1992 and two reprints in 1994 and 1996; Mulej and co-authors, 2000; Mulej et al, 2012)[ii]. Thus, Tatjana Mlakar, an M.A. student of management and organization then, decided to study the social insurance and medical care by using both, the LST and the DST, in her M. A. Thesis (Mlakar, 2000), Mulej being her supervisor. We found LST and DST complementing rather than competing or overlapping with one another. They can provide a very useful combination of which we have detected no case in the literature. Both of them contribute to systems thinking in their own right (see our understanding of systems thinking in: Mulej et al., 2003). Mlakar provided a further contribution in her Ph.D. dissertation (2004) and articles: (Mlakar, Mulej, 2007; Mlakar, Mulej, 2008, if we quote only the international ones).

II. METHODS

We used desk research to understand and compare systems theories and the official documents on social responsibility (SR). Then we did a survey-based investigation with a sample of public medical care professionals to test our hypothesis that SR is able to contribute to the quality of work and work life because it reinforces systemic behavior without talking theory of systems theories.

We made a deliberate choice among many systems theories in line with our topic of research, which is the public medical care with the case of Slovenia, a rather small European Union member and a former part of Yugoslavia for seven decades after seven centuries in Austria and Austria-Hungary empires.

III. THE SELECTED SYSTEMS THEORIES IN A BRIEF OVERVIEW

First, let us take a look at LST.

LST was generated by a very broad-minded and bright medical doctor (Bailey 2003a). On this basis, LST tends to describe formalized entities called systems (on 7, later 8 levels of complexity) with its 6 aspects[iii] including 19 (later 20[iv]) subsystems. LST tries to impose a rather biological view upon everything to which life may be ascribed. LST's innovation enables a very good overview and care for details, which are essential for holism and which many may forget about while putting holism (reduced to big picture alone without details) in the forefront under the name of systems theory (see for examples the quoted conferences). LST's selected aspects are prescribed on a fixed basis and hardly put in interdependence. LST's lists of living systems and subsystems are exhaustive, prescribed, quite rigid (see: SIG Living Systems Analysis, in Bausch, Christakis, editors, 2003). The same is true of LST's relations between the subsystems and LST's processes inside the living system at stake. Subsystems in contact with the system's environment are admitted in LST, but relations are not, except for the very

basic notions of input and output. No human or organizational creativity seems to be expected, foreseen or detected, except as a role of a few subsystems. LST provides an answer to what happens, in case that things go wrong, it can be limited to the sixth process detected inside the living system.

Being restricted to the description, LST provides no methodology of an applied type and is aimed at problem solving; it offers only some roles or subsystems supposed to make an impact, and leaves their methodology to users.[v] Although holism of thinking is limited to biological viewpoint, it is relatively provided, if all six aspects are considered by the observer describing the object at stake with any of the seven or eight living systems. Interdependence among these six viewpoints, their mutual attractors, resulting process of emergence and resulting synergy of attributes into new (living) systems are not exposed, at least not explicitly. Hence, one may say that LST works on a single viewpoint or a set of viewpoints rather than on a system of them, thus raising a question mark of its own holism or comprehensiveness (see: Bailey 2003b). But it tries to cover common attributes of everything alive, not humans only. It is linked to the Bertalalanffy's GST more by the notion of isomorphisms than by interdisciplinary approach and resulting synergies of insights and actions, which is Bertalanffy's most crucial contribution. To some extent it is linked to Bertalanffy by his notion of organization (see Bertalanffy, 1979; 187-188).

Miller says that his LST cannot be considered a finished theory until the great number of hypotheses he has proposed have been confirmed or refuted. Miller's choice of systems viewpoint is specific; it is based on natural sciences to unite everything existing and hence useful in illustrating and comprehending systems as complex entities at the eight[vi] levels of Miller's selection, and in portraying connections between and within those levels (Frandberg, 2005). This statement provides flexibility in application, which we also have allowed ourselves.

Living systems are a special case of the really existing complex entities called concrete systems which are composed of matter, energy and information (Swanson, 2005). To Miller systems are not mental pictures of existing entities like to other authors (e.g. Mulej, 1974, 2000, and later; Checkland, 2011, and earlier). All organisms, in terms of LST, can access and exploit the information that is encoded into their organization – even single-celled organisms (Rosen, 2005). Sometimes a social group prefers an enforced wrong stability to await a more appropriate one to emerge (Parhankangas, 2005). Human activity entities/processes are called social systems in which people perform actions (Lind, 2005). One can hardly think of life without immediately focusing on its dynamic aspects, too (Cottam, 2005).

Applications can be very diverse (See e.g. ISSS conferences that include SIG in living systems every time, i.e. every second year).

These statements of specialists in LST allow us to go on trying to develop something new, e.g. a new bridge between two or more systems theories leading toward their new synergy (for other similar attempts see e.g.: Rosi, 2004; Mulej et al., 2005; Potočan et al, 2005; Vrečko, 2011). But LST says nothing about attributes of users of LST and their purposes, objectives, tasks, and processes in using it. In our experience, theorists would better care for these human attributes in order to not provide a good basis for an evil action. This has been very much a central concern of DST since 1974; we will return to it.

Let us turn to Umpleby's Cybernetics of Conceptual Systems (CCS) a bit.

Several years later Umpleby (1994) pays a similar attention to the human impact in his ideas of conceptual systems; he cites von Foerster saying in 1973 that each individual construct his or her own "reality", as compared to what Mulej did independently in 1974 with his notion of the 'selected viewpoint'. Dent and Umpleby (1998) speak of eight underlying assumptions, which are quite close to Mulej's Dialectical Systems Theory (DTS) and its 'guidelines for subjective starting points' of any process of human creative activity (Mulej (et al), 1975, 1979, 1992, 2000, 2008, 2012). But nobody except Mulej in DTS seems to talk about influencing the humans to make their thinking and behavior more systemic and creative. We believe we follow Bertalanffy's (1979) work on Systems Teaching[vii] and we make one more step ahead with DTS and Tatjana Mlakar's new 'Controlling Systems Theory' (CST) (Mlakar, 2004).

We combined LST and CCS with DTS to make CST (Mlakar, 2004; Mlakar, Mulej, 2008). Let us brief DTS now.

DST was created by a development economist in a country that was a latecomer to the modern industrial and post-industrial life. Slovenia was a part of Yugoslavia then (Mulej, 1974a, b; Mulej, 1979; etc.). On such a basis, DST tends to support changing of humans' thinking, feeling, and behavior toward more creativity, especially innovating, and holism.[viii]

DTS is based on the notion of the dialectical system (DS). DS is defined as a mental, rather than concrete system (entity, network) of all and only essential viewpoints and resulting systems (mutually different and complementary mental pictures of the object under consideration).[ix] The selected viewpoints are interdependent and develop or evolve as mutual attractors by emergence into a synergy making a new interdependence (for details see e.g.: Mulej et al. 2012). In DST, the definition of holism includes as a DS (Mulej, 1979):

- Systemics (the general attributes of the synergy based system as the entire entity under consideration; it covers complexity, big picture, global attributes emerging from relations, including relations between viewpoints of dealing with the object at stake, e.g. a public medical care as a whole);
- Systematics (detailed attributes of the single parts of the system as entities of their own, i.e. complicated-ness such as single departments in hospitals);
- Dialectics (interdependencies among parts and/or viewpoints, showing up as attractors and generating emergence and resulting synergies, e.g. the interdependence-based relations such as cooperation between departments in hospitals as a synergy); and
- Materialism / realism (decision makers may not oversimplify by exaggerated reductionism; in the case of a hospital one should not treat patients with wrong procedures).

In order to help humans work toward holism in their monitoring, thinking, perception, communication, decision-making, and action, DST's components and their relations are:

- The law of the requisite holism and/or the dialectical system[x];

- The law of entropy[xi];
- The law of hierarchy of succession and interdependence[xii];
- Guidelines for the subjective starting points in the phase of definition of objectives[xiii];
- Guidelines for the subjective starting points in the phase of realization of objectives[xiv];
- Methodology for informal application of systems thinking – USOMID[xv]. All of it helped people create very many inventions and innovations over the forty years of its development and application, as well as prevent many oversights and resulting failures.[xvi]

DTS concentrates on the subjective starting points of humans in any work process in their interdependence with the so called objective starting point, i.e. outer to the humans at stake, in the form of needs and possibilities[xvii]. On the basis of decision makers' subjective starting points, including their interpretation of the objective ones, they select their DS of viewpoints to be considered, and leave the other possible viewpoints and their synergies aside. In this phase an unavoidable reduction takes place, but hopefully not an exaggerated over-simplification, e.g. in anamnesis phase.

Let us add one more criterion to compare LST and DTS.

In terms of the four types of systems approaches as described by Mueller-Merbach (1992), which are the (1) introspective, (2) extrospective, (3) constructivist, and (4)contemplative approaches, LST would most fit in the introspective approach, but CCS and DTS in the contemplative one. The introspective approach namely concentrates on internal attributes of the object under consideration; its point is to find out the attributes of the object from the viewpoint of the nature-scientific positivist cognition (i.e. plain facts, causes, causalities, effects, no interpretation of one's own). The contemplative approach tries to get the observer to put him or herself in the shoes of the observed object, to do this deeply, and to perceive it as an indivisible whole.

In the public medical care these four approaches matter: (1) to see the essence of the patient's physical or psychical problem, (2) to see its circumstances, (3) to create diagnosis, prognosis and medication process, and (4) to deeply think about the anamnesis, diagnosis, prognosis, and medication process, related material, financial and other conditions. DTS links all four of them in one DS. CCS links individual and society-wide thinking about it. LST describes the given status of it.

Conclusion: LST is a tool of any kind of humans (perhaps of honest scientists only), while DST impacts humans (scientists and practitioners). DTS helps humans add the requisite holism to their own specialization by creative interdisciplinary cooperation. Today, both a narrow specialization and the requisite holism are unavoidable. Together they prevent bad consequences, such as world wars (in extreme) or detrimental climate changes.[xviii] (Ecimovic et al., 2012).

Let us now briefly turn to official reflections on systemic behavior.

IV. INTERNATIONAL DOCUMENTS SUPPORTIVE OF SYSTEMIC BEHAVIOUR

The European Union requires in its official documents systems thinking when talking about innovation (EU 1995; EU 1996; EU 1997; EU 2000; EU 2001; EUR 17036 2001; etc.). The European bodies also require systems thinking, innovation and learning when talking about quality (Pivka, Ursic, Leskovar-Spacapan, 2001). Thus we have been right when requiring (a decade earlier) systems thinking, innovation and quality to be linked (Mulej et al., 1992; Rebernik, Mulej, eds. 1992).

Still, many humans, as narrow specialists without education in systems theory, have a hard time when they are supposed to use it and be requisitely holistic in their approach, when the economic and organizational viewpoints of the situation require it, such as the current crisis. In such cases the new concept of social responsibility (SR) can be very useful (EU, 2011; ISO, 2010). In ISO 26000, SR namely links all contents by two basic concepts from DTS: interdependence and holistic approach (see Figure 1).

SR became increasingly important in recent years, especially after a very long economic growth cycle had ended with the crisis which began in 2008. Publications about SR are counted in many millions. The authors who wrote about SR from the viewpoint considered in this article include (Mulej, and Knez-Riedl 2011; Ženko 2011; Mulej, and Ženko 2010; Ženko, Mulej, and Božičnik 2010; Hrast, and Mulej eds. 2010; Hrast, and Mulej 2010; Šarotar Žižek et al. 2010; Esposito 2009; Hrast, and Mulej eds. 2009; Ženko et al. 2008; Božičnik et al. 2008; Prosenak, and Mulej 2008; Hrast, Mulej, and Knez-Riedl, eds. 2006; Knez-Riedl, Mulej, and Dyck 2006). For a list of more other authors see (KEN, 2011).

Contributions on SR are too many to read, e.g. in Google's related websites. Our selection shows the following situation:

- The simplest (and oldest) version of SR is charity, which is still important, but it might only be a mask for real one-sidedness rather than RH of behavior of influential persons and their organizations, concerning many other aspects/topics in Figure 1.
- European Union (EU, 2001) mentions officially four contents of SR (of enterprises): the point is in a free-will-based acceptance of the end of abuse of employees, other business partners, broader society, and natural preconditions of humankind's survival, beyond the law. The new EU's (2011) definition is shorter: organizational responsibility to society (incl. nature).
- In literature on business excellence one requires more – upgrading its measures with SR (For an overview see: Gorenak, Mulej, 2010). A bridge is also offered. It identifies SR as the acceptable modern values, culture, ethics, ad norms (VCEN) of human behavior (Potočan, Mulej, 2007), and business excellence as a method that leads to SR in practice (SFPO, 2010).
- In further literature one sees the connection between systemic thinking and SR (Cordoba, Campbell, 2008).
- A fourth group of references links SR with world peace (Crowther, Caliyurt, 2004).
- ISO 26000 (ISO, 2010) requires a holistic approach (based on interdependence) and includes seven content areas (see Figure 1). SR is in the wording of ISO 26000 quite limited to organizations, but much less so in the spirit behind

the words, as we see it; it is no longer limited to enterprises any more, and it addresses humans.

To further develop the understanding and practicing of SR the most important in ISO 26000 are three groups of points with the number seven:

- Seven principles: 1. accountability, 2. transparency, 3. ethical behavior, 4. respect for stakeholder interests, 5. respect for the rule of law, 6. respect for international norms of behavior, and 7. respect for human rights (ISO 2010: 10-14).

- Seven core subjects (ISO 2010:19-68) are summarized in Figure 1. We find the two concepts linking them at least equally important: 1. interdependence, and 2. holistic approach (ISO, 2010: lines 896-900).

- Chapter seven that suggests seven steps of the procedure of introduction of SR into the organization.

Together they support systemic behavior without ever mentioning it or its complex theories.

Holistic approach and interdependence are defined (lines 896 – 900 in ISO 26000) as follows: "An organization should look at the core subjects holistically, that is, it should consider all core subjects and issues, in their interdependence, rather than concentrating on a single issue. Organizations should be aware that efforts to address one issue may involve a trade-off with other issues. Particular improvements targeted at a specific issue should not affect other issues adversely or create adverse impacts on the life cycle of its products or services, on its stakeholders or on the value chain." Holistic approach and interdependence between process participants are addressed indirectly in ISO 26000 by usage of terms such as: stakeholders, accountability, transparency, ethical behavior, respect for rule of law and other rules, honesty, human rights, dialogue, wider impact, no abuse, no discrimination, healthy environment, no exploitation. This means that interdependence is considered and leads to (requisite) holism attainment by their interaction like in an informal systems/cybernetics thinking/behavior. This is close to the pioneers of systems theory and cybernetics: Bertalanffy (1968: VII) wrote explicitly that he had created his General Systems Theory 'against overspecialization', Wiener practiced interdisciplinary creative cooperation.

Thus, SR reinforces on the global level the law of requisite holism and ethics of interdependence, which have been formulated by Mulej and Kajzer (1998) and used in this case, too.

Figure 1: The seven core subjects and two crucial linking concepts: interdependence and holistic approach, of social responsibility in ISO 26000

International Standard ISO 26000 is a great guide to SR, actually systemic, behavior. We expect that as the Kyoto protocol since 1990 has introduced many global changes, so will the ISO 26000. At the same time ISO 26000 is a guide, not an international law. It is more about the terms in the SR and cases of best practices than about the requisite holistic SR behavior. We believe that including the theory and methods of the Dialectical Systems Theory (Mulej, 1974; Mulej et al, 1992; Mulej et al, 2000; Mulej et al, 2008; Mulej et al., 2012) will help the stakeholders' SR acting to be easier to accept, practice and demand globally.

V. APPLICATION OF SYSTEMIC THINKING THROUGH SR IN PUBLIC MEDICAL CARE

According to our investigation using a sample of professionals in the public medical care in Slovenia, the public medical care in Slovenia is becoming increasingly aware of the need of socially responsible behavior. But it is not enough. Some individuals are thinking and speaking about social responsibility in the public medical care in Slovenia. Many participants in the public medical care in Slovenia do not understand them. This is a great problem.

The model of organizational synergy of LST and DTS with the Living Systems Theory that we have published (Mlakar, 2004; Mlakar, Mulej, 2008) can help, but we may complete it with insights from the social responsibility model as follows:

- The seven principles of social responsibility are close to the medical ethics and can hence help medical professionals of all professions understand and accept requisite holism that the combination/synergy of LST and DST are speaking for.

- All seven areas addressed by the social responsibility model can apply to public and private medical care, including all sub-areas mentioned in the model.

- The seven steps suggested by the social responsibility can also apply to medical care, and can be used to provide a project and program of innovation of values, knowledge and resulting synergistic practice of medical professionals, both as professionals and citizens with any level of formal and informal impact over their professional, social and natural environments.

VI. DISCUSSION

Systemic behavior can be well supported by social responsibility and can make a crucial contribution to human well-being. The non-holistic approach stressing growth of the Gross Domestic Product has caused no progress in human prosperity (Cassiers, 2001). One does not necessarily speak of systems theory, including LST and DTS, once an indirect promotion is more acceptable, as our sample of medical professionals in the public medical care in Slovenia is showing.

Five basic lines of measures to be undertaken for more systemic behavior via social responsibility are suggested:

- Individuals: to understand and practice, as consumers, to prefer real need over greed, and to prefer suppliers having a well-grounded image of social responsibility. Both have

started happening in the USAA before the 2008 crisis (Gerzema, 2010; Zgonik, 2011).

- Organizations, both enterprises of all sizes and other: to understand and practice social responsibility as a human attribute and business strategy that prevents or diminishes, at least, cost resulting from dissatisfaction of people (e.g. in the form of visible and white strikes, cancelling and unreliability concerning contracts and resulting expensive search for new suppliers and customers, social riots all the way to international terrorism, wars, etc.) and from unhealthy natural environment (e.g. in the need for eco-remediation and medication of humans and other nature; etc.). This includes a longer-term basis for managerial incomes to support their less short-term and narrow criteria of decision-making (Roubini, 2010). Manager's behavior in the style of the visionary company that make the leap from good to great can help a lot (Collins and Porras, 1997; Collins, 2001). So can 'collaborative leadership rather than a one-way commanding one (Creech, 1991).

- Country/government: to understand and practice that the public sector, as a whole, is the biggest customer and can therefore include in its procurement preconditions the demand and unavoidable precondition, which says that any organization of the public sector (from kindergarten to government offices and army, etc.) may be supplied only by suppliers that can prove to be the very top in the combination of (1) social responsibility, (2) innovation visible in the top business excellence and total quality of its supplies and its internal and external business practice, all the way to its 'systemic quality' as a systemic synergy of suitable prices, pay-role, development funds, technical and commercial quality, innovativeness all way to uniqueness of its supplies, suitable range offered, sustainable care for its natural environment and other contents of social responsibility, (3) attainment of the same attributes with its own suppliers and their care for the same attributes of their suppliers (Mulej, 2007; Mulej, Hrast, 2011; Mulej, Hrast, 2012).

- International community: understand and practice efforts to add to the international law, which is not obligatory and can therefore not be enforced except by agreement, especially when concerned with the multinational corporations, world peace, and the basic human rights, while only these three topics may be the role of world democracy including the world governments being made of honest and socially-responsible people with no abuse of their influence.

- Scientists and educators (including public media): produce and teach VCEN and methods supportive of social responsibility as human attributes and organizational vision, politics, strategy, tactics and daily practice, not limited to enterprises.

All these lines of action can apply to medical care and medical professionals, too, and receive support from them.

VII. CONCLUSIONS

If a holistic insight and innovative changes are needed, a combination of the LST and the DST is a better choice than using each of them separately. With the LST many details become visible; with DST they can become an information basis for an action. The LST alone can neither assure use without abuse, because it does not care for users' values and knowledge, nor can ensure an action, especially one of a creative orientation. DTS alone can hardly provide all the necessary insight, but it can build a bridge between different aspects of the process at stake and help them produce a creative synergy of insights of different professions. More work is needed on the attributes of successful leaders for this experience to be applied (Mayer 2003; Zenko 1999; Zenko, Mulej 1999). Troncale (2002) is right: systems science is the science of synthesis and integration. Integration of LST and DTS supports his view in this case: it reduces mental reduction and fights reductionism and over-specialization. The new social responsibility model supports these efforts very well. The public medical care is no exception, despite the difficulty due to the limited impact of the market pressure over it.

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[i] See (Ecimovic, Mulej, Mayur 2002; Mulej, Ženko, 2004, Mulej et al. 2012) for their brief presentations in English rather than in the original Slovenian. The first publications about DST appeared in 1974 (Mulej, 1974a, b).

[ii] In these books LST is presented as the most quoted theory helping people think along the lines of the General Systems Theory (GST). On the other hand, from discussions in several ISSS annual conferences Mulej did not get impression that all discussants of LST had a deep knowledge of Ludwig von Bertalanffy's work, the father of GST. See Ecimovic, Mulej, Mayur (2002), chapter 1, for our view of GST.

[iii] The six aspects are: system structure, basic process being the reason for the system to exist, subsystems, relationship between subsystems, processes within the system, models and simulations. For every of his seven systems, Miller tried to detect, how the six aspects show up. He did not succeed in all cases (Mlakar, Mulej, 2008).

[iv] Miller added 'timer' later. We did not use it.

[v] This provides the users flexibility to add methods of their own choice to the basic thorough insight, which LST provides for very well. Thus, the concept of LST may become transferable to non-biological applications.

[vi] They were seven, originally (Miller, 1978), later Miller added community. We did not use it.

[vii] Teaching is Bertalanffy's word in his German original text. To us, teaching differs from theory, which provides insight only, while teaching includes impact and provides a cybernetic character along with insight.

[viii] This might be the reason for François (2004; 169 in Book 2) to call DTS peculiar.

[ix] In every case DS would mean a synergy of all essential systems (= mental pictures) of all essential professionals. Sometimes some selected viewpoints / systems would make a DS, sometimes others. There is no chance for any final or objective decision on what belongs in a DS. Authors accept responsibility for their choice: in a medical case selection of treatment of a patient.

[x] Specialization is unavoidable, because there is so much knowledge. Holism is equally unavoidable, because oversights cause troubles. Total holism is not possible; holism inside a single profession or discipline tends to be fictitious, because all other viewpoints are left aside, if there is not enough interdisciplinary cooperation, e.g. between doctors, nurses, technicians, patients, relatives of them.

[xi] Entropy expresses the permanent natural tendency of everything to change into something else, i.e. to be destroyed. This makes the requisite holism of human thinking, decision making and action necessary, in order to enable existence and innovation to fight the entropic tendency e.g. of an ill patient.

[xii] Earlier phases are more influential than the later ones in any process. Hierarchy of position expresses this fact: bosses must cover earlier phases, especially preparation and definition of objectives. This is their duty rather than their right. Their DS must be much broader and more long-term oriented than the one of the workers on e.g. the assembly line. Nobody and no phase is independent, all of them are interdependent, i.e. in need of each other and complementary to each other. – Success in application of all three laws depends on human attributes, acting as the subjective starting points of any process of human activity, including public medical care. Anamnesis is more influential than diagnosis, which matters more than prognosis that directs medication. But corrections are possible due to interdependence.

[xiii] People working on definition of objectives take an enormous responsibility, because all later activities depend on them. To succeed, they may not define the desired objectives, but requisitely holistically grounded ones. Guidelines help them attain the requisite holism, which must be rather broad and long-term oriented, e.g. managers.

[xiv] People working on realization of objectives take responsibility for rather narrowly specialized jobs, but may not forget about the whole, while they work on parts. Guidelines help them attain their requisite holism, e.g. medical-team members.

[xv] In the real life practice patients use medicines etc., without knowledge of their theoretical background. USOMID is a methodology enabling humans to use DST informally, implicitly, and perhaps with some support from facilitators. USOMID has been applied with very many successes since 1981 (Mulej, 1981; Mulej, 1982-2012 Mulej, Ženko, 2004). Manuals were bestsellers (Mulej et al., 1986). Innovations worth many millions resulted. Oversights were prevented or stopped, requisite holism, interdependence, and creativity received support and reinforcement.

[xvi] Later USOMID was combined with De Bono's 6 thinking huts (Mulej and Mulej, 2006). The combination works even better in practice.

[xvii] E.g. needs in the market of e.g. medical interventions, and possibilities in the form of medical facilities. (It does not matter whether or not we perceive them, they exist objectively.) The decision makers' know contents and answer the question 'What and why?' Knowledge on methods answers the question 'How and why?' Values and other emotions answer the question 'What do we want, like, or dislike and refuse – on an irrational basis, which is equally natural as the rational basis of human personality is?' All of them are interdependent. This causes their interaction, causing emergence of new attributes, showing up as new synergies; e.g. healthy-again patient.

[xviii] It is hardly a coincidence only, that both cybernetics and systems theory have been established and rather widely accepted in years right after the 1914-1945 period of two world wars and the world economic crisis between them. And it is hardly a coincidence, that documents of United Nations about sustainable development actually, although implicitly, use the Bertalanffy's concepts by stressing the worldwide interdependence of humans and other nature. Equally in line with the real situation is the European Union's requirement that innovation must be promoted and one must use systems thinking to do it. – In a crisis holism and creativity are essential for ways out of the blind alley to be found and implemented. A thorough description of the situation helps a lot in this effort. This makes LST and DST complementary, able to produce a fruitful synergy.