Distinction-Based Consulting and Decisions
Social Systems Theory and Second-Order Cybernetics as Premise for Powerful Decisions

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ABSTRACT

If you travel or interact with larger companies, you probably have noticed some novel practices:

- The next step in automation for travelers has arrived: Recently, air passengers have been able to check in not only themselves but also their luggage.
- The banking sector is in transition. The number of branches and employees is declining; business is increasingly taking place on the internet and smartphones.
- "Robot lawyers" that support or automate legal processes are the new trend in legal technology. They are expected to offer efficient alternatives to legal services.

The above-mentioned examples illustrate a trend that seems to be unstoppable: Automated processes and even artificial intelligence are taking over the services sector. This is the economic sector, where the human workforce was once an indispensable source of added value.

Such developments may lead to further questions about our future. From a social system-theoretical point of view, for instance, organizations are built through the communication of decisions. However, many of the current trends in business are based on creating machines or procedures that make decisions for people. If machines decide instead of humans, how can we validate humans as decision makers?

In this paper, we want to focus on the above question using premises of social system theory and ideas of second-order cybernetics as guides for (a) a better understanding of the dynamics; (b) self-reflection; and (c) adapted perspectives for upcoming challenges.

Keywords: Systemic Consultancy, Second-Order Management, Artificial Intelligence, Social Systems Theory, Solution-Focused Work, Decisions

1. INTRODUCTION

"We have no idea what the job market will look like in 2050. It is generally agreed that machine learning and robotics will change almost every line of work."[1] In recent years, the effects of artificial intelligence on our working environment have been the focus of media attention. New technologies such as autonomous driving could render taxi drivers completely unemployed in the long term, as well as truck drivers and logistics specialists.[2]

Many business sectors are constantly experiencing changes associated with new technologies. Our society has already gone through an industrial revolution and adapted accordingly. However, despite all efforts to predict how digital technologies will affect our future, the outcome of this "new revolution" is entirely contingent.

A study by Carl Frey and Michael Osborne, together with the management consulting company Deloitte, analyzed the automation potential of 702 occupations and how great the danger is that these professions will be replaced by machines in the future. According to the study, 47 percent of jobs in the USA are endangered by progressive automation. The researchers, on the other hand, believe that jobs that require particularly human skills - such as knowledge of human nature, negotiating skills or persuasiveness - are safe from automation.[3]

When it comes to the discussion about whether machines will make decisions for us in the near future, the impression we have is of a rather concerned public opinion. "When machines decide coldly" is the headline of an article in *Die Zeit*, a renowned newspaper in the German-speaking world. Such headlines illustrate the mood in which discussions about "decisions and machines" are currently taking

place. On the other hand, articles or headlines such as "*New system allows self-driving cars to make more human decisions*"[4] give us the sensation that the future has already arrived – and we are not even prepared for it. When machines decide for us, what remain as a field of duty for humans in the in the value-adding process?

Before we begin answer this question, we will analyze the systemic meaning of decisions and consequences of decision-making more closely. This systemic and system-theoretical understanding of what decisions are about, and also a distinction-based comprehension of our role in the decision-making processes should build the foundation for fresh insights.

2. DECISIONS

In contrast to (pure) actions, decisions can only be communicated if the rejected possibilities are also a subject to this communication. Decisions are therefore events that address themselves as contingent.

In an organizational system, decisions can no longer be characterized as a simple choice between several possibilities. Niklas Luhmann describes three main characteristics of decisions: decision as an element of a system, the selectivity of decisions, and their temporality: [5]

- **Element**: Decisions must pretend to be a unit despite their solubility in "relation of the difference of alternatives" and the chosen alternative itself. Only when decisions are seen as a unit it is possible to build a foundation for further decisions.
- **Selectivity**: decisions must also address the selectivity factor related to their relationship to other decisions. It means that they select twice: one of several alternatives and also which relation they establish or block to other decisions. Thus, for example, an organization will be present at a conference (not absent) and this will control which decision necessities arise from it.
- **Temporality**: "Decisions must [...] assume and reflect a time-binding function."[6] Decisions presuppose a difference between past and future, and at the same time they make a difference between past and future. After a decision has been made, everything proceeds differently than if it had not been decided.

In a distinction-based point of view, decisions are a form of communication that highlights the distinction between selected and non-selected alternatives. Therefore decisions make a difference and, in this respect, decisions become information.[7]

A decision-making situation, however, is one in which there are not only several alternatives to choose from, but also one in which an observer capable of making decisions looks at them. From a social system-theoretical perspective a machine cannot decide, because it cannot make a social choice, nor can it consider "possibilities" beyond the facts. One precondition to imagining possibilities is that there exists *someone able* to imagine the impossible, the "would" or "could". If possibility as a concept for communication were seen only as something for whose realization all conditions would have to be fulfilled (if the conditions were not fulfilled, that would be impossible), then the concept of possibility in a social notion would be senseless, because in this case only what would have already happened would be possible. So for a computer there are no possibilities, because it has neither the choice (only calculations), nor it can consider (social) possibilities. The concept of decision thus presupposes the existence of alternative possibilities for a subject, "namely the idea of the future, to which I can give or refuse my consent", as Thomas Fuchs puts it. And Fuchs continues: "The prerequisite for freedom of decision is [...] a space of thinking, of possibilities, in which I can move freely from factual constraints."[8]

All machines possess are data and calculation with which they make a choice. They are able to calculate probabilities. Nowadays they are also able to learn from human behavior and they can choose between various options as well. But they cannot decide without data, they need to be informed about all the rules and constraints of the environment where the choice should take place, and they cannot (or should not) change or break the rules for this choice.

In summary, for social decisions to take place the following conditions should be given:

There must be an observer who can deal with

- preferences, tastes and predilections (with his/her own and those of others),
- ethics/morals (distinguish between good and evil but also determine what is good and what is evil in order for our species to survive; we recommend empathy in this matter),
- heuristics and/or intuition and the
- imagination of possibilities.

"Only *those* questions that are in principle undecidable, *we* can decide."[9] Heinz von Foerster called this sentence a "metaphysical postulate". But what does it mean? "[D]ecidable questions are already decided by the choice of the framework in which they are asked, and by the choice of the rules used to connect what we label 'the question' with what we take for an 'answer.'"[10] But on the other hand, undecidable questions have no factual constrains that forces us to answer such questions one way or another. We have the choice. "*We can choose who we wish to become when we have decided on an in principle undecidable question.*"[11]

3. ORGANIZATIONAL DECISIONS & UNCERTAINTY ABSORPTION

In an environment such as in an organizational system – which from a social system theoretical point of view consists of the communication of decisions[12] – "[…]every decision presupposes that it has not yet been possible to make a decision."[13] With each decision the organization builds its own future and challenges.

In organizations the decision of which person may be responsible for what type of decision is an essential one. Job descriptions are a good example of what most organizations use to get their definitions of responsibility and positions straight. For interaction with other systems and people, the fact that we assume that an organization is able to take responsibility for its decisions is a precondition for trust and further decisions.

The next significant role of decisions in and for organizations is the concept of uncertainty absorption.[14] This concept explains the process in which decisions connect to each other: Every decision situation is marked by uncertainty as to the consequences of alternative courses of action or alternative decisions. But once the decision has been made, "the original uncertainty is absorbed to the extent that all the decisions that follow it can take that decision as given and no longer have to consider the original uncertainty: 'Because once something has been decided, it need not normally be decided again'"[15]

To reduce uncertainty, however, organizational decisions should be addressable to someone or something that takes responsibility for the consequences of the decision.

4. POWERFUL DECISIONS

If we could measure the value of information produced by a decision, in Luhmann's perception, responsibility would be this information value of a decision. The more possibilities that can be excluded with a decision, the higher the responsibility can be attributed to this decision. Therefore, the more the environment offers constraints, rules and restrictions for decisions, the less "value" decisions have.[16]

However, when machines are programmed to decide, they need an environment full of rules and constraints. In other words, they need data to be able to calculate their choices. The more reliable the data is and the more accurate the calculations and algorithms are, the greater the chance for the machine to deliver "right" choices.

If we assume a deterministic understanding of the world, the same conditions mentioned above would also be true for humans. "The brain, after all, is simply a collection of molecules following the laws of physics; it's a computer made of meat", as Jerry Coyne puts it. [17] However, in the case of unpredictable situations, we humans have developed complexity-reducing strategies such as responsibility, authority, affiliation or the feeling of belonging, culture and, connected to all those, decisions.

In this respect, decisions are an intrinsic social concept for socially relevant situations. Without responsibility we usually do not want someone or something to make a decision that excludes a lot of other possibilities. Without responsibility, for example, we would not appreciate coexisting with driverless cars if they could not be held responsible for consequences of their poor choices. Without responsibility machines are neither able nor allowed to make strong decisions.

In this regard, what we can already experience as a client and consumer of artificial intelligence (AI) technologies is an accountability shift: we may pay for services but have to bear the responsibility of potential nonconformities (e.g., if you trust the autopilot and don't pay attention to the roads and cause an accident; or if you book the wrong flight online or make some mistake at the online check-in and therefore miss your plane). Some years ago we had few options other than to take a taxi instead of using the autopilot, or to trust our travel agent instead of booking travel ourselves – and therefore leave the responsibility for their services and decisions in their hands.

Returning to organization systems and their core operation, which is the communication of decisions, the role of leadership becomes clearer: According to a comparative-systemic definition, leadership means "making strong/effectual decisions in difficult situations, which give others support and orientation (without demanding to always be able to do it)."[18] Therefore strong decisions give the system orientation and stability in complex situations.

While one way to measure the strength of a decision in an organization is to compare its tenacity toward the power of the alternatives and influencing factors, there is also another relevant aspect concerning strong decisions: The "recognition". Or in other words: How many people follow the decision?

In social systems we have to deal with many uncertainties. The digital interconnectedness of our modern world produces a lot of data, and developers are finding ways to explore the potential and utility of this data. However, to make choices concerning the future, all the data-busters has is data of past events and the calculation of probabilities.

5. PREDICTIONS AND REALITY

One of the primary applications of machine learning and AI technologies is to predict human behavior.[19] To achieve best results in their prognoses, the engineers work with the assumption that people are creatures of habit. Moreover, they assume that, when given the freedom to do anything someone wants, most people will do what everyone else is doing.

Besides, for predictive models to be useful, they must also provide one or more prescriptions for potential future actions that enable decision-makers to make better decisions.

At the current stage of development, predicting human behavior for the purposes of machine learning has not been an easy task. In an article at Science Magazine, V.S. Subrahmanian and Srijan Kumar describe what they consider to be the four major challenges for the next generation of predictive models: [20]

1) The ability to deal with noisy, incomplete, and inconsistent data.

2) Rare-event prediction: Machine learning algorithms have difficulty unraveling the data on these "rare" individuals from innocent ones.

3) The generation and reduction to practice of robust multistage predictive modeling for emergent phenomena (e.g. protests or trends).

4) Human behavior is changing rapidly. "Adversaries (e.g., malware developers or terrorists) are constantly adapting to their environment. Here, a form of higher-order prediction (prediction about the prediction model) is key. We need to be able to predict when the model will go wrong or when human behavior will change, so we develop a new prediction model well before too many mistakes are made."[21]

Throughout history, people try to predict rare events and/or behaviors – with little success. Nonetheless, up to now calculations and algorithms have helped to estimate incidents and behaviors in some limited areas. This might give us the feeling that we have tamed uncertainty. However, as Nassim Taleb pointed out in his book "Black Swan", by focusing on predicting the random, humans tend to create environments where extreme events are more likely.[22] Instead of trying to outperform ourselves in predictions, to focus on how to deal with the unpredictable could be more useful, at least in an organizational context.

6. ETHICS AND AI

"Progress imposes not only new possibilities for the future but new restrictions."[23]

In Vienna, there is a law requiring that dogs should be kept on a leash or wear a muzzle at all times when on public property. The 99-year-old owner of an 18-year-old medium-sized dog lived on the edge of the city in the only house on the last corner of a dead-end street. Since the old lady could not walk the dog any more, for several years the dog was accustomed to going out alone on the street right in front of the house and doing what dogs do when they go for a walk. Her daily routine was a challenge for the 99-year-old lady: Making it to the door in order to let the dog out, and standing in the door frame while the dog was outside for a few minutes to walk around. One day, two police officers arrived at the grandmother's house and reproached her for letting her dog out by itself. They proposed a 29-euro penalty to be paid on the spot. Because she didn't understand the situation, she didn't pay the fine. A few weeks later she found a bill for 400 euros for her "law infringement" in her mailbox. The lady was very confused, since her monthly retirement pay was not much more than 800 euros. The officers were not willing to take the context into consideration: the fact that the dog was old, blind, toothless, harmless

and used to walking alone in a limited, deserted area, the grandmother's age and health, or the fact, that the second fine was half the of what she lived on in a month. They were exclusively focused on following the established rules at all costs, literally.

This little (true) story should illustrate the concerns some AI-Researchers have when it comes to the topic "ethics and AI": "As artificial intelligence advances, humans behaving like machines will be a bigger problem than machines being human."[24] Aku Visala, an Academy Research Fellow in Helsinki focus his work on the ways the development of robotics and AI will change our understanding of humanity and alert: "If we outsource care to machines, we are denying ourselves and others the opportunity for moral growth and commitment. In addition, this may alter our concept of what is considered a morally worthwhile goal." On the other hand, AI-developers should care more about their "idea of man", since this idea influences algorithms and the way machines and humans interact.[25] It is therefore not irrelevant if humans are seen as less capable then machines. The focus is on the question of "functional allocation": How much control is assigned to humans and how much to the machine?[26] Among other things, this question opens the discussion about whether the power of decision-making should belong to humans or machines.

"If we treat people as they are, we make them worse. If we treat people as they ought to be, we help them become what they are capable of becoming."[27]

It is still a mystery what social life will look like in a world of a more intense human-machine interaction. What we know now is that machines work based on first-order concepts of the world. Their capability to observe observation as observation (second-order observation) is practically non-existent. Critical thinking, (free) will and consciousness are therefore still specifically anthropogenic features. And last but not least, as Norbert Wiener puts it – people usually do not appreciate being treated like machines.[28]

7. THE IMAGE OF THE MANIPULABLE HUMAN BEING

In our daily work with people in organizations we can observe that even when people have concerns about the conditions they are forced to follow when they want to enjoy the benefits of new technologies, they do not feel as though they have the power to change this situation. Most people just accept all present conditions. This attitude could harbor some dangers.

People get used to the most improbable situations step by step. This effect is well described in W. L. Rothschild's book "99 Fragen zum Judentum", using the example of the Nazi extermination process of Jews and other minorities during World War II. We know how far this development went in the NS regime. The people slowly got used to each of the steps the regime imposed – such as sending a group of people to ghettos and later to concentration camps – and the bystanders accepted one by one. This phenomenon is often called the "the boiling frog" effect.[29]

However, for machines to work and act independently they need to be coded in relation to an expected environment. In a recently released special issue on reintegrating AI and robotics the editors illustrate the current situation as follows: "Yet, despite more than half a century of innovations, AI has not fully achieved the promise of making robots intelligent. Researchers in AI have clustered around abstractions of real-world problems. Often, these reflect simplifying assumptions that do not hold in the case of physically situated and embodied robot systems." [30]

An environment full of rules to be followed is therefore helpful for coding. It helps when we seek to predict events and deliver solutions according to the rules. If you ever tried to explain a special request to a chatbot or needed support for your online-banking account regarding a peculiar situation, you know how awkward it can be without the support of a human service provider. In order to enjoy the benefits of AI, we must adapt to their limitations and follow the rules.

When it comes to situations where we have little to no influence, where rules don't work or are not possible to impose, as it is the case of spontaneous social interactions and some nature-driven events, humans have the possibility to make powerful decisions. This sort of decision affects the further course of events and regulates the way the situation will evolve.

In this sense, second-order cybernetics concepts stimulate self-observation and help us to understand our role in building reality. Through self-reflection, critical thinking, double- and triple-loop learning (deutero learning, G. Bateson)[31] we have a chance to contextualize and distinguish our decisions.

8. AN ORGANIZATIONAL PARADOX

The considerations above illustrate a new paradox: In

order to manage complexity and minimize reaction time we eventually need flat hierarchies and therefore highly responsible decision makers in every hierarchical level. For solutions in complex situations we need a liberty space as an essential condition for initiative and creativity to evolve in different organizational cultures.

But, for the implementation of AI we still have to adapt working processes to correspond to standards and rules. As a result, human actions are subordinated to these standards. However, in potentially most relevant social interactions such as conflicts, double bindings, tensions or leadership issues, rules or standards are rarely beneficial. What those situations have in common is the lack of reliable, useful data and/or the relevant data for the decision process.

Humans are able to make decisions even if data is missing. Leaders prove this every day. These decisions can have major impacts on the framework and therefore the quality of living conditions. In this context there is a human feature that is again crucial for the stability and further existence of the system: responsibility.

The duty of a leader is to make decisions about new goals in a specific and new context. However, from a social point of view, the future is always uncertain – and therefore new. Many decisions made by managers are only relevant and important because there is a person who is willing to take responsibility for them.

Distinction-based consulting methods work on the basis of useful differences, asking questions that focus on distinctions, which lead to a new perception of the first-order observation. "In terms of social systems theory: through solution-focused questions the system can be inspired to observe its environment in a slightly different way; during re-entry, it then integrates this difference in its own premises or codes."[32] This process is only possible when people are willing to reflect on their own actions and thoughts. They must be aware of their influence in their environment and know their innermost motivation concerning the system they are living in. All systemic methods based on distinctions and solutions for social systems are purely human-based and human-oriented. They can rely on the stable syntactical patterns behind complex human dynamics. But the content they produce varies with each and every context and is therefore always new. Machines, in the context of complex human dynamics, are only part of the environment, which humans have the authority to transform.

9. CONCLUSION

In order to be able to make clear decisions, machines need a narrow frame of rules. As a consequence, if humans want to benefit from machines' services, humans have to be willing to live within this narrow frame of rules. As a result we have to be prepared to pay the price of living in an environment with reduced possibilities.

From a system-theoretical and systemic point of view, we address the initial question of this article: If machines decide instead of humans, how can we validate humans as decision makers? The machine may make a decision but we still need someone to take responsibility for the decision and its consequences. If the responsibility for decisions still relies on humans, it is up to us humans to decide if we prefer to appropriate to each occasion, following our will and intuition, using our creativity and personality or following rules and standards, apart from all we could feel or sense.

A decision only reduces uncertainty when it has an evident responsible authority behind it.[33] Up to now only humans have the preconditions for social decisions. If we don't have the courage to make decisions, the situation will be decided by others. Not making decisions increases complexity.

Our decision-power remains insofar as we are willing to further develop interest in and be aware of our abilities and imagination, our feelings, our (free) will, our needs, our consciousness, our intuition, and our responsibilities.

With a better comprehension of the meaning which the work of second-order cybernetics and distinction-based theories and methods have for the relationship between humans and social systems, many other new possibilities emerge to understand, manage and lead social systems – especially organization systems. With the focus on relevant distinctions as alternative to facts or content-based work in a narrow sense, new perspectives emerge. Therefore, more options to act or handle can be created.

Conversely, accepting a narrow frame of rules as limitation of our decision possibilities, reduces our options for action. Hence, let us remember Heinz von Foerster's Ethical Imperative: "[A]ct always so as to increase the number of choices."[34]

10. REFERENCES

[1] Y. Harari, **21 Lessons for the 21th Century**, Jonathan Cape, London, 2018, p.19

[2] S. Dörner, **Droht mit Digitalisierung jedem zweiten Job das Aus?** Die Welt, 2016 https://www.welt.de/wirtschaft/webwelt/article150856398/Droht-mit-Digitalisierung-jedem-zweiten-Job-das-Aus.html (last viewed January 8th, 2020)

[3] ibid.

[4] E. Montalbano, **New System Allows Self-Driving Cars to Make More Human Decisions**, in: Automation & Motion Control, Artificial Intelligence, Automotive, Alternative Energy, September 5th, 2019 https://www.designnews.com/automation-motion-control/new-system-allows-self-driving-cars-make-more-human-decisions/190875871861456 (last viewed January 8th, 2020)

[5] T. Stingl de Vasconcelos, **Begehrtes Wissen**. Carl Auer Verlag, Heidelberg, 2012, p.48f

[6] N.Luhmann, **Soziologische Aufklärung 3: Soziales System, Gesellschaft, Organisation**, Westdeutscher Verlag, Opladen, 1981, p.341 (loosely translated)

[7] "A 'bit' of information is definable as a difference that makes a difference." G. Bateson, **Steps to an Ecology of Mind**, The University of Chicago Press, 1972, p. 315

[8] T. Fuchs, **Was heißt 'sich entscheiden'? Die Phänomenologie von Entscheidungsprozessen und die Debatte um die Willensfreiheit**, in: T. Buchheim, T. Pietrek (ed.), Freiheit auf Basis von Natur? Mentis, Paderborn, 2007, p.104f

[9] H. von Foerster, **Ethics and Second-Order Cybernetics**. SEHR, volume 4, issue 2: Constructions of the Mind, 1992, Updated 4 June 1995 https://web.stanford.edu/group/SHR/4-2/text/foerster.html#note1 (last viewed January 8th, 2020)

[10] ibid.

[11] ibid.

[12] N. Luhmann, **Organization and Decision**, Cambridge university press, UK, 2018, p. 42

[13] ibid, p.132

[14] ibid, p.148

[15] D. Seidl & H. Mormann, **Niklas Luhmann as Organization Theorist**, in: Adler, P., du Gay, P., Morgan, G., Reed, M. (eds.) Oxford Handbook of Sociology, Social Theory and Organization Studies: Contemporary Currents. Oxford: Oxford University Press, 2015, p. 154

[16] N. Luhmann, **Organization and Decision**, Cambridge university press, UK, 2018 p.157

[17] Jerry A. Coyne, **Determinism**, in: J. Brockman (ed.), This Idea is Brillant, HarperCollins Publishers, New York, 2018, p.177

[18] Matthias Varga von Kibéd quoted in E. Ferrari, **Führung in einem Satz**, Ferrari media, Kindle Edition, 22 Oct 2017 (loosely translated)

[19] Andrew C. Oliver, **A quick-and-dirty way to predict human behavior**, InfoWorld, FEB 2016, https://www.infoworld.com/article/3253582/a-quick-and-dirty-way-to-predict-human-behavior.html (last viewed January 8th, 2020)

[20] V. Subrahmanian & S. Kumar, **Predicting human behavior: The next frontiers**, Science 355 (6324), 489, 2017 https://science.sciencemag.org/content/355/6324/489 (last viewed January 8th, 2020)

[21] ibid.

[22] N. Taleb, **Antifragile: Things that Gain from Disorder**, Penguin Books, London, 2012, p. 7

[23] N. Wiener, **The Human use of Human Beings: Cybernetics And Society**, Da Capo Press, Boston, 1954, p. 46

[24] P. Rautio, "**As artificial intelligence advances, humans behaving like machines will be a bigger problem than machines being human**", 2018 https://www.helsinki.fi/en/news/teaching-studying-at-the-university/as-artificial-intelligence-advances-humans-behaving-like-machines-will-be-a-bigger-problem-than-machines-being-human (last viewed January 8th, 2020)

[25] S. Spiekermann, **Der Mensch: Ein Fehler**, Süddeutsche Zeitung, Nr. 70, Feuilleton, 23./24.3.2019, p. 13

[26] ibid.

[27] "Wenn wir sagtest Du, die Menschen nur nehmen, wie sie sind, so machen wir sie schlechter; wenn wir sie behandeln als wären sie, was sie sein sollten, so bringen wir sie dahin, wohin sie zu bringen sind." J.W. von Goethe, **Wilhelm Meisters Lehrjahre**, 1795/6. 8. Buch, 4. Kap., 1795, p.194

[28] J. Brockmann, **Der geist der unbegrenzenten Möglichkeiten**, Süddeutsche Zeitung, Nr. 63, Feuilleton, March 15th, 2019, p. 11

[29] "The boiling frog is a fable describing a frog being slowly boiled alive. The premise is that if a frog […] is put in tepid water which is then brought to boil slowly, it will not perceive the danger and will be cooked to death." Wikipedia, https://en.wikipedia.org/wiki/Boiling_frog (last viewed January 8th, 2020)

[30] F. Pecora et al. **Special Issue on Reintegrating Artificial Intelligence and Robotics,** Künstliche Intelligenz 33, 2019, p.315–317 https://link.springer.com/article/10.1007/s13218-019-00625-x (last viewed January 8th, 2020)

[31] N.M. Seel (ed.), **Encyclopedia of the Sciences of Learning**, Springer Verlag, Freiburg, 2012, p. 939f

[32] T. Stingl de Vasconcelos & Ph. Belcredi, **Solution-Focused Consultancy Work. Practice-Oriented Application of Distinction-Based Concepts Integrating Context Factors for Resilient Solutions**, paper at the 23rd World Multiconference on Systemics, Cybernetics and Informatics: WMSCI 2019

[33] N. Luhmann, **Organization and Decision**, Cambridge university press, UK, 2018, p.156

[34] M. Lissack, **Shed the Name to Find Second-Order Success: Renaming Second-Order Cybernetics to Rescue its Essence**, in: A. Riegler, K. Müller, S. Umpleby (ed.) New Horizons for Second-Order Cybernetics, World Scientific Publishing, Singapore, 2018, p.55